COMMERCIAL REFRIGERATION & AIR CONDITIONING

DECEMBER 1953

FRANCHISED CIRCULATION

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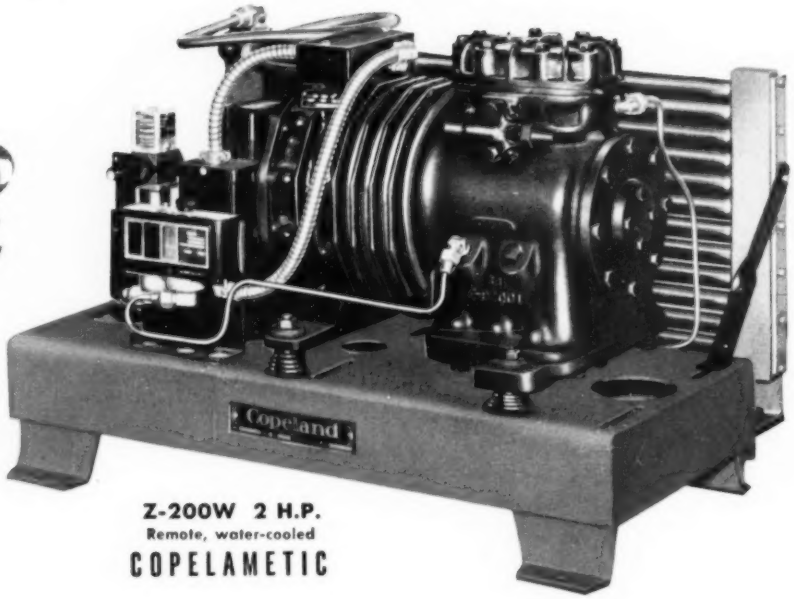
MERCHANDISING, SELLING, INSTALLATION AND MAINTENANCE OF AIR CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT

with COPELAMETIC

THE *Accessible* HERMETIC



Z-200W 2 H.P.
Remote, water-cooled
COPELAMETIC

You'll find quicker acceptance, greater customer satisfaction when you sell Copelametic, the Accessible Hermetic. They appreciate the direct-drive unit that says goodbye to belts, seals and manual oiling. They value the practical feature of accessibility.

gives you a "ready-made" market

Everywhere refrigeration is used, Copelametic, the Accessible Hermetic, is known for efficiency and economy. Remarkable performance has made Copelametic a product others are following. Consistent advertising tells every refrigeration prospect the advantages of Copelametic, the Accessible Hermetic. The market is there. It's up to you to supply it.

sizes for all applications

Air-cooled Copelametics range from ¼ H.P. through 3 H.P., water-cooled from ⅓ H.P. through 7½ H.P. There are self-contained models for all practical applications.

Write for Condensed Catalog C-52A.

REFRIGERATION UNITS · OPEN TYPE AND COPELAMETIC® WATER COOLERS

Copeland
DEPENDABLE *Electric* REFRIGERATION

COPELAND REFRIGERATION CORPORATION · SIDNEY, OHIO

Circle No. 1 on Reader Service Card

save time

prevent freezing or de-humidification with

ALCO EVAPOTROL 760

Time is money! The 760 is engineered to save you time *three ways*... on hundreds of small installations when temperature counts.

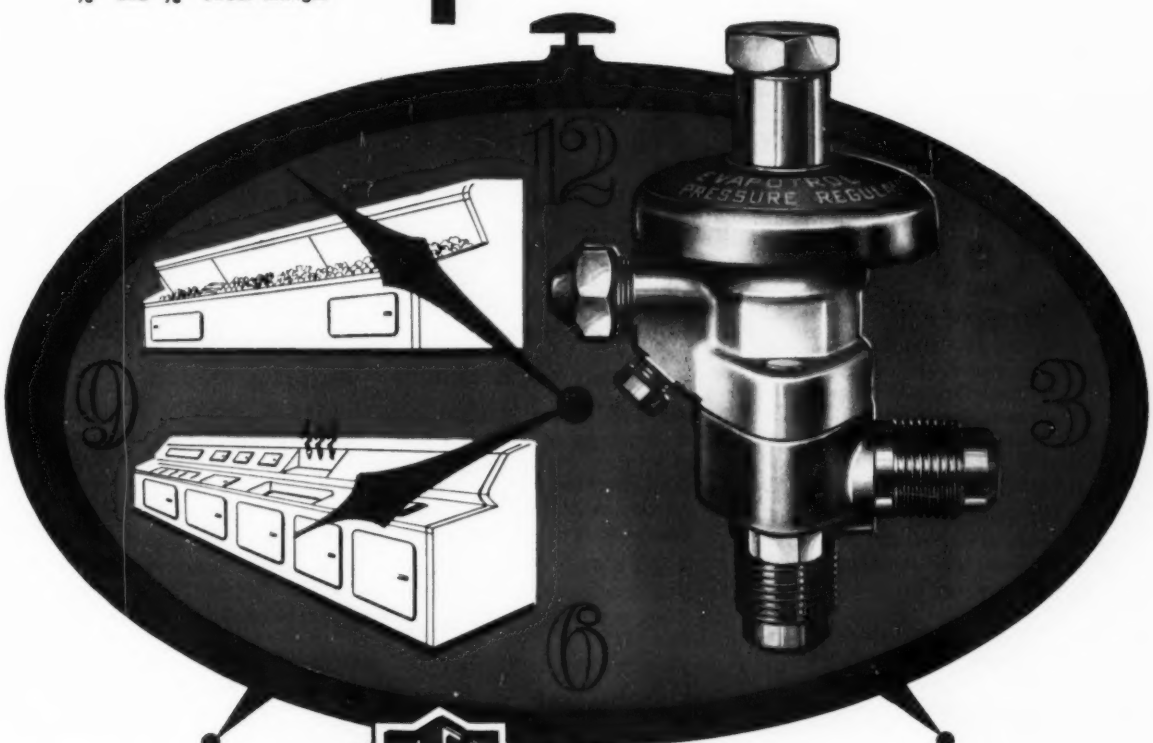
SAVES INSTALLATION TIME—Compact, light-weight, easy to handle in tight spots.

SAVES ADJUSTMENT TIME—To change pressure, merely remove seal cap and turn the screw. Gauge connection for accurate setting—prevents error.

SAVES SERVICE TIME—"Come-apart" construction permits easy cleaning or inspection without removing valve body from line.

SEE YOUR ALCO WHOLESALER

Available with 1/2" and 5/8" SAE fittings or 5/8" and 7/8" sweat fittings.



ALCO VALVE CO.

857 KINGSLAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

5792

Circle No. 2 on Reader Service Card

One drop of acid in a refrigeration system is more harmful than freeze-ups.

THE SONG OF THE ACID DEVILS

We rust and pit and copper plate,
Make motors good for junk.
We clog up filters, break down oil,
And form a lot of gunk.
• • •
We plug up screens and driers, too,
And ruin systems thru and thru.

REMOVE HARMFUL ACIDS WITH ANDRITE

ANSUL'S NEW *DEEP-DRYING* DESICCANT

HOW DRY SHOULD A REFRIGERANT BE?

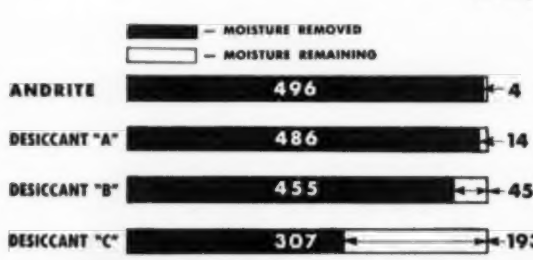
. . . so dry that there can't possibly be a chance of trouble from moisture. For instance, "Freon-12" should contain no more than a maximum of ten parts moisture per million parts refrigerant. Any more than that and "Freon-12" is dangerously wet.

Below is a comparison of the drying effectiveness of An*drite* and three other leading desiccants; showing how An*drite* removes moisture to four p.p.m.

Acids may form in refrigeration systems due to action of moisture on the refrigerant, breakdown of oil, soldering fluxes, refrigerant breakdown during soldering operations and from motor burn-outs in hermetic units.

Free acid in refrigeration systems can cause pitting and rusting of compressors, copper plating, oil breakdown and plugging of screens, driers and filters. In hermetic systems acids cause deterioration of motor windings. Regardless of the type of system, complete failure often results in cases of severe exposure to acids and corrosion solids.

Ansul T-*FLO* Driers with An*drite* not only remove water but also remove acids and corrosion solids. Ansul Driers assure clean, deep-dried, neutral and trouble-free refrigeration systems.



The above tests were made on a refrigerating system charged with methyl chloride containing 500 P. P. M. of moisture. Each test ran for eighteen hours at 140°F.

Ansul T-*FLO* driers are sold through Refrigeration Wholesalers exclusively.

ANSUL Chemical Company
REFRIGERATION DIVISION • MARINETTE, WISCONSIN

MANUFACTURERS OF REFRIGERATION PRODUCTS, INDUSTRIAL AND FINE CHEMICALS, LIQUEFIED GASES AND FIRE EXTINGUISHING EQUIPMENT

Circle No. 3 on Reader Service Card

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DECEMBER, 1953
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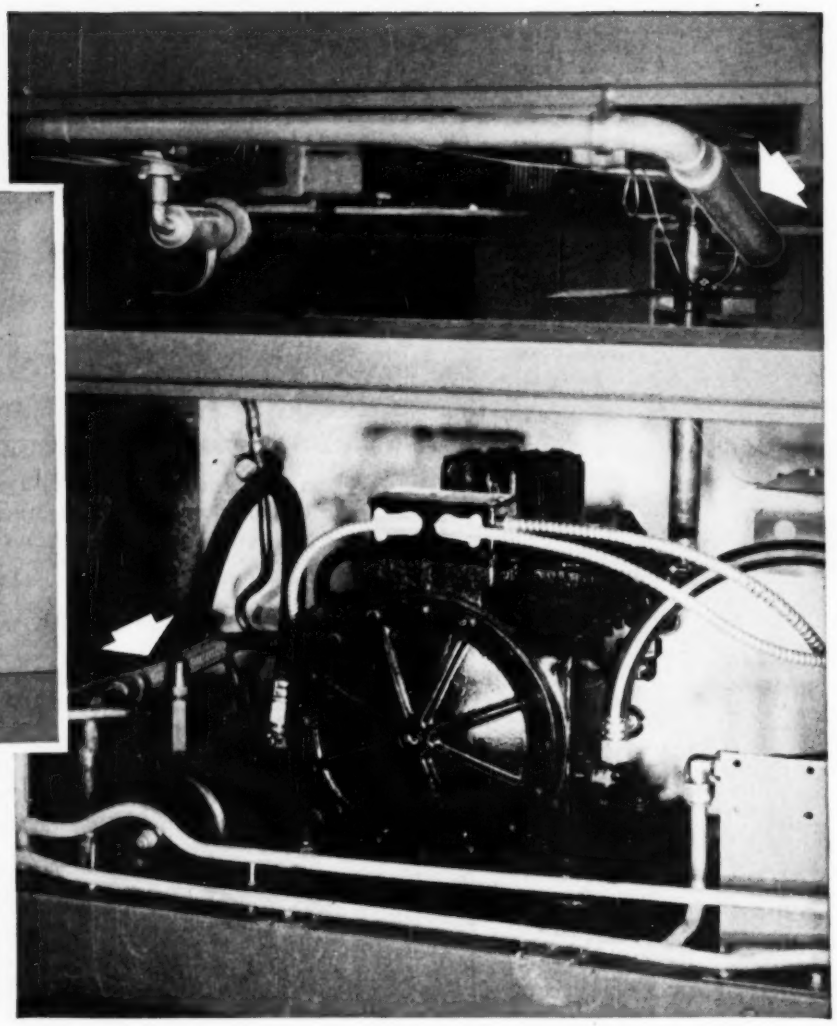
FLEXIBLE CONNECTORS



Melco Packaged Air Conditioners, powered by Copeland, are made by Melchior, Armstrong, Dessau Co. Inc., Ridgefield, New Jersey. They are fully equipped with American Vibration Eliminators . . . the most practical way to minimize the twin nuisances of vibration and noise.

RIGHT: REAR VIEW OF MELCO AIR CONDITIONER

Here's how Melco chokes off compressor vibration

Even in the smoothest-running compressor there's always some vibration. If it's left unchecked, transmitted and resonant noises will surely result in customer dissatisfaction. Melco Packaged Air Conditioners keep their famed "hushed" operation by choking off vibration and noise with American Vibration Eliminators.

These connectors not only absorb vibration that would otherwise travel along refrigerant lines, but they also allow for expansion and contraction in the rigid lines . . . protect against fatigue-cracking. American Seamless Flexible Bronze Connectors—called Vibration Eliminators—are absolutely pressure-tight. They convey costly refrigerants safely. They install easily and require no maintenance.

Melco engineers, like others in the air conditioning and refrigeration field, report complete satisfaction with American Vibration Eliminators. Made to fit standard copper tube sizes. For more specific information on how they can be adapted to your requirements, ask your regular supplier or write for Bulletin VE-310R to: *The American Brass Company, American Metal Hose Branch, Waterbury 20, Conn. In Canada: The Canadian Fairbanks-Morse Co., Ltd.* 53244

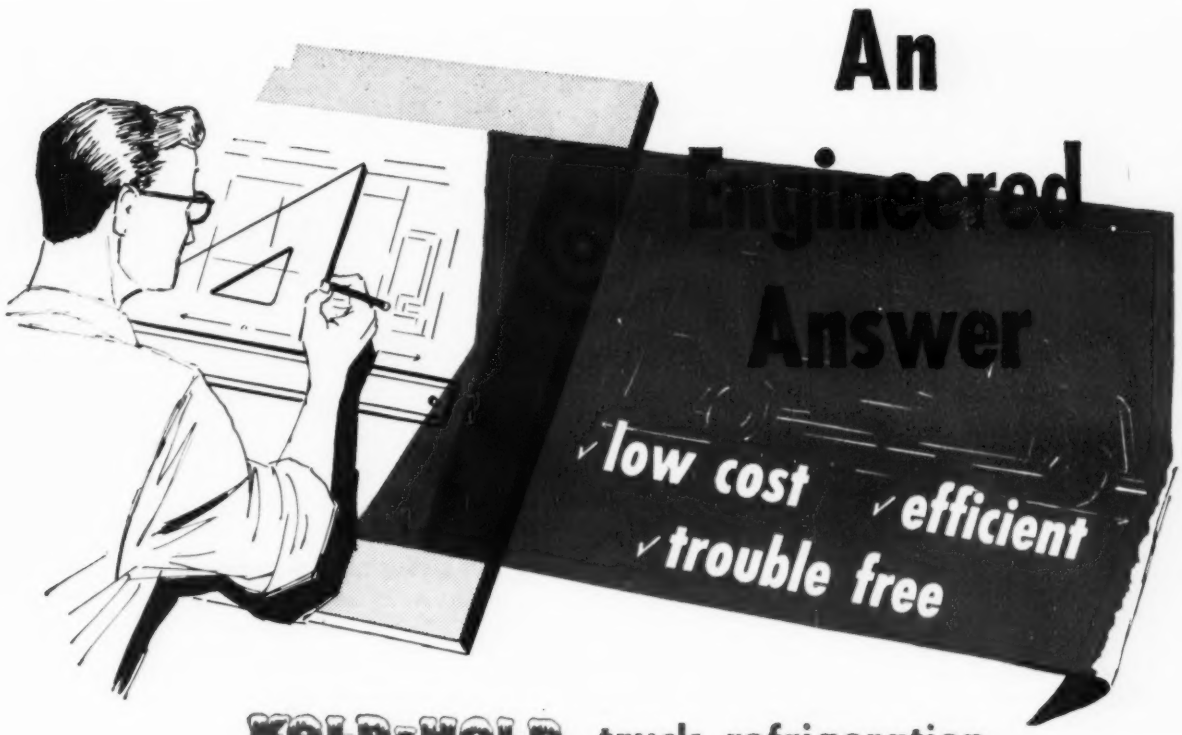
WHEREVER CONNECTORS MUST MOVE

AMERICAN

flexible metal hose and tubing

an ANACONDA® product

Circle No. 4 on Reader Service Card

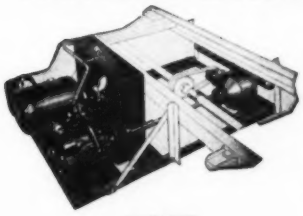


KOLD-HOLD truck refrigeration will pay for itself

Now you can have truck refrigeration that is engineered to your special needs using any of several different methods of truck refrigeration. It can be fully automatic and entirely independent of the driver using a Kold-Trux "Mobilmatic" Highside Unit. The Kold-Trux Unit can be combined with Bonus Capacity "Hold-Over" Plates, Thin "Hold-Over" Plates, "Quick-Action" Plates or "Hydro-Pack" blowers to provide thermostatically controlled temperatures automatically. For semi-automatic installation, a mounted compressor or make-and-break connections can be used with "Hold-Over" Plates to maintain predetermined temperatures throughout day-long hauls.

Send the details of your problems to Kold-Hold and let our engineers determine the most efficient solution for your refrigeration problems. Write today for full details.

KOLD-HOLD *can answer any refrigeration problem!*



KOLD-TRUX

Which do you prefer . . . Mobile or Hold-Over truck refrigeration? Kold-Hold can give you either or a combination of both.

When your weather worries start, pick out the routes with the biggest refrigeration problems and call on Kold-Hold to give you a satisfactory solution. They will give you the right combination for your needs from such highsides as the Kold-Trux Mobile Unit, a mounted compressor, or make-and-break assemblies, coupled to such lowsides as Kold-Hold Hold-Over Plates, Thin Plates, Serpentine Quick-Action Plates, or Blowers.

Why not give us the details of your problems and let our engineers find the most efficient solution for you. Write today for details.

HOLD-OVER PLATES

Tell us your truck refrigeration problems and send now for complete data and literature.

KOLD-HOLD

protects every step of the way

Division of TRANTER MANUFACTURING, Inc., 502 E. Hazel St., Lansing 4, Mich.

Circle No. 5 on Reader Service Card

IMPORTANT FACTS ABOUT

• • • *the great*

MANUFACTURERS · WHOLESALERS · SERVICEMEN:

A YEAR AGO, General Chemical announced its entry into the refrigeration and air conditioning field as a primary producer of the two big "work horse" fluorine refrigerants: trichloromonofluoromethane and dichlorodifluoromethane—under the trademarks "Genetron" 11 and "Genetron" 12.

THIS WAS HIGHLY SIGNIFICANT NEWS. Until then, there had been only one manufacturer of these two basic refrigerants which are so essential to the Industry's existence.

WITH THIS SUBSTANTIAL NEW SOURCE, a strong, well-balanced supply exists for the first time. Now there will be sufficient productive capacity to serve all your refrigerant needs—both present and future.

EQUALLY IMPORTANT, you no longer face the hazard of crippling shutdowns that arises when there is a single producer of a primary component material. Instead, your interests are well protected, for not only is there a sound supply situation, but with it has come freedom of choice and assurance of superior product quality and fine service that always follows in the competitive American market.

SUCH FACTS ARE VITAL TO YOU whether you are a manufacturer, wholesaler or serviceman. Because of the importance of "Genetron" refrigerants to the Industry, many sound, logical questions have been asked about them and their producer.

Here are the answers:

genetron®...

new name in basic refrigerants

HERE IS A MESSAGE OF VITAL INTEREST TO YOU!

Who is General Chemical?

For over fifty years, General Chemical has been one of the nation's largest manufacturers of basic industrial chemicals, including sulfuric and hydrofluoric acids. It has almost 100 producing and operating locations across the country.

What is its background in Fluorine Chemicals?

A pioneer in the field, General Chemical is recognized as Industry's primary source of fluorine chemicals. It makes more than 90 organic and inorganic fluorine compounds for industrial and research applications, including the atomic energy program.

Is it qualified to make products of the high purity required in refrigerants?

Definitely. General Chemical also makes the country's leading line of high purity laboratory reagents and fine chemicals. Under its Baker & Adamson label, it offers over 1,000 such products —all made to meet quality specifications of "decimal point" exactness.

What is its raw materials position?

Ideal. General Chemical not only has its own mines and reserves, but is the foremost producer of hydrofluoric acid and elemental fluorine from which virtually all fluorine chemicals are made.

Where are "Genetrons" made?

At Baton Rouge, La., in one of the newest, most modern fluorine refrigerant plants in America.

What kind of service can I expect?

The best. General Chemical has 27 sales offices in major centers of commerce to serve you and handle your orders.

Does General also have regional warehouse stocks?

Yes. Stocks of "Genetron" refrigerants are at General Chemical warehouses at key points across the country.

Are the "Genetrons" "new" refrigerants?

No. "Genetron" 12 is the widely used refrigerant, dichlorodifluoromethane. This chemical has long been the mainstay of the refrigeration and air conditioning industry. "Genetron" 11 is trichloromonofluoromethane, second of the big "work horse" fluorine refrigerants.

Are "Genetrons" interchangeable?

Absolutely. "Genetron" 12 and "Genetron" 11 are identical and interchangeable in all respects with dichlorodifluoromethane and trichloromonofluoromethane produced by any manufacturer meeting the same high refrigerant standards.

Are "Genetrons" approved?

Certainly. "Genetron" refrigerants have been tested exhaustively by major manufacturers of refrigeration and air conditioning equipment in their own laboratories and are being used in their equipment.

What about their moisture content?

It's extremely low! General Chemical's special methods for producing "Genetron" refrigerants are so exacting that their quality is consistently better than indicated by these stringent manufacturing specifications:

	"Genetron" 12	"Genetron" 11
Moisture-wt. % max.	0.0010	0.0025

Is overall purity good?

Yes, it's the highest! The "Genetrons" are extremely pure chemicals manufactured to meet quality standards which are in many respects more rigid than those for the purest research chemicals.

What container sizes are available?

"Genetron" refrigerants are offered in the various standard container sizes required by manufacturers and wholesalers. "Genetron" 12 is shipped in 2,000-lb., 145-lb., 25-lb., and 10-lb. cylinders; "Genetron" 11 in 2,200-lb. cylinders and 200- and 100-lb. drums.

For further information

about "Genetron" refrigerants write or 'phone the nearest General Chemical office listed below. Ask for free Technical Service Bulletin 11-12A, "Genetron" Refrigerants.

Products of

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

Offices: Albany • Atlanta • Baltimore • Birmingham • Boston • Bridgeport • Buffalo • Charlotte • Chicago Cleveland • Denver • Detroit • Greenville (Miss.) • Houston • Jacksonville • Kalamazoo • Los Angeles • Minneapolis New York • Philadelphia • Pittsburgh • Providence • San Francisco • Seattle • St. Louis • Yakima (Wash.)
In Wisconsin: General Chemical Company, Inc., Milwaukee

In Canada: The Nichols Chemical Company, Limited • Montreal • Toronto • Vancouver

America's Foremost Producer of Fluorine Chemicals

Allied Chemical

Circle No. 6 on Reader Service Card

Genuine Joe says:

Don't Rewind-Replace

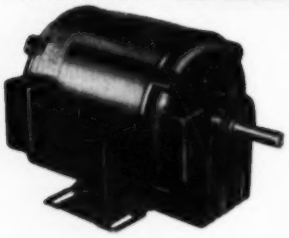
IT COSTS LESS FOR SMALL MOTORS WHEN YOU USE

Wagner

STANDARD ROTORS

Today—due to constantly rising labor costs—it usually costs you less to replace armatures in fractional hp. motors with Wagner Standard Rotors than to rewind the old ones. There's no guesswork involved—the "tell all" label on the Wagner Rotor Carton, used with the K and M "spec" lists, shows you the *right* replacement unit everytime. If necessary, the shaft can be removed from the standard armature and your special shaft used instead.

it's also wise...and profitable to stock Wagner replacement motors



Carry a stock of Wagner motors—to replace motors "too far gone" for economical repair and for emergency use where your customer needs immediate service. You'll find it pays off—and you can often make a ready sale.

Wagner Electric Corporation

WAGNER ELECTRIC CORPORATION
6442 Plymouth Ave., St. Louis 14, Mo., U. S. A.

MOTORS · BEARINGS · STANDARD ROTORS · BRUSHES · CAPACITORS · COMMUTATORS

OVER 750 AUTHORIZED SERVICE STATIONS OR PARTS DISTRIBUTORS

MS53-2

Circle No. 7 on Reader Service Card

LETTERS

Seeks Source of Component Parts

EDITOR:

We are contemplating going into the manufacture of automobile air conditioners.

Would you be kind enough to give us a list of names of the factories where we can get compressors, condensers, evaporators and any other kindred parts that go into the manufacture of automobile air conditioners?

S. GROSSMAN
Allison Air Conditioning, Heating
Washington, D.C.

There are a number of components, such as compressors, condensers, evaporators, and the like that are an important part of any automobile air conditioning system, and probably your best source of advice on this is your local refrigeration wholesaler. If he is not able to suggest the exact equipment that will fulfill your requirements, he will be in an excellent position to put you in touch with manufacturers who can provide this service for you.

Wants Better System For Pumping Ammonia

EDITOR:

Could you tell me if anyone makes a pump other than a compressor, for transfer of ammonia vapor?

We have 30M anhydrous ammonia storage tanks and get our ammonia in tank cars. We would like to transfer vapor from storage tank to tank car so that liquid will be forced into storage tank, then when all liquid is out of tank we reverse pump with 4-way valve and pull vapor off of tank car to storage.

We will have a working pressure of 150# or less and a maximum differential of 75#.

We have been using a compressor with 5-hp motor, but think there should be a better way to do this.

HAROLD J. BOETTCHER
Beloit Battery & Electric
Beloit, Kansas

We have checked with a couple of people who have had considerable experience in the handling of

Here are the Symbols SPORLAN has made Famous!

No other thermostatic expansion valve designed for commercial refrigeration offers the Peak Performance of Sporlan's Famous G Valve with Selective C and Z Charges.

INTRODUCED by Sporlan to the industry in 1934, this combination has steadily forged ahead in popularity until today refrigeration men, both young and old, have made it their No. 1 choice . . . They know best what Peak Performance really means!

"C" CHARGE *for suction temperatures* above *zero.*

"Z" CHARGE *for suction temperatures* below *zero.*

plus **"X" CHARGE** *for extremely low temperatures.*

Buy a Sporlan **"G"** *Valve*

with Selective Charges from your Wholesaler today! . . . and be sure to ask him for the Sporlan 52-C Catalog. With it you can select the proper Thermostatic Expansion Valve, Solenoid Valve and Catch-All to give that Sporlan "Right-Down-the-Line" Peak Performance!

SPORLAN VALVE COMPANY

7525 SUSSEX AVE. ST. LOUIS 17, MO.

EXPORT DEPARTMENT
89 BROAD STREET NEW YORK 4, N. Y.

Circle No. 20 on Reader Service Card

HUMIDITY AND TEMPERATURE

recorded on the same chart

You can keep the record straight on temperature and humidity. And you can keep them both on one chart!

No matching up of separate graphs. No confusion about what went on at what hour of the day or the week. It's all right there in front of you on one easy to read chart . . . compiled by a precision made Bendix-Friez Hygro-Thermograph.

The record is kept for you automatically for a 29 hour "day". Or a 176 hour "week".

Checks your installations

Portable, this Bendix-Friez Hygro-thermograph can be placed anywhere you want to check the efficiency of your air conditioning or refrigeration installation.

Precision constructed . . . one of the Bendix-Friez standards of the world . . . here is accuracy in a fine recording instrument.

✓ **HYGRO-THERMOGRAPH** Can this precision instrument be of help to you? Inquiries are invited, without obligation, from the scientific and industrial fields, particularly concerned with air conditioning, refrigeration and heating.

BENDIX FRIEZ

FRIEZ INSTRUMENT
Division of Bendix Aviation Corporation
1410 Taylor Ave. Baltimore 4, Md.

Export Offices
BENDIX INTERNATIONAL DIVISION
205 E. 42nd St. New York 17, N.Y., U.S.A.

Circle No. 9 on Reader Service Card

anhydrous ammonia, and they tell us that to their way of thinking the method which you now employ for transferring this chemical from tank car to storage tank is the most practical one available. However, we do have one possible suggestion as a source of further information on this subject. We suggest, if you are still interested, that you contact directly the Lipman Div., Yates-American Machine Co., Beloit, Wisconsin. These people have had considerable experience in the handling of ammonia and the production of ammonia equipment, and possibly might be able to aid you in your problem.

Who Makes Stainless Steel Restaurant Equipment?

EDITOR:

Would you kindly send us the names of several manufacturers of stainless steel sandwich units and stainless steel display cases adaptable to restaurant use?

PENN APPLIANCE CO.
Mercersburg, Pa.

Some of the principal manufacturers of this type of equipment are included in the following listing:

Victory Metal Mfg. Corp., Philadelphia, Pa.; Stainless Food Equipment Co., Newark, N. J.; Leitner Equipment Co., Chicago, Ill.; Glenco Refrigeration Co., Philadelphia, Pa.; Lern, Inc., Chicago, Ill.

DOODLER'S DELIGHT

"DOODLE PADS" for customers' use have been prepared by Simpson Electric Co., Chicago, for distribution by Simpson representatives. The pads, printed in two easy-on-the-eyes colors, measure 17" x 22" and are in pads of 50 sheets each. Flanking each sheet are illustrations of popular models of Simpson testing equipment. Also included are a list of company representatives, a special boxed section for writing daily appointments, and a 21" rule at the bottom of the sheet.

Galveston's BUCCANEER HOTEL has Quiet Reliable Air Conditioning Control

JE

SOLENOID VALVES are the REASON!

Well known by vacationers from coast to coast is the Buccaneer Hotel on Galveston's famous beach front. The Buccaneer is noted for its fine food, easy accessibility of swimming and surf fishing.

Each modern room has radio, Television, and personalized air conditioning. Naturally JE Solenoid Valves were chosen to provide individual temperature control of each of the guest rooms.

Where quietness and reliability are important, wise contractors install JE Solenoid Valves. That's why the Southwestern Division of the York Corporation, in Houston, Texas, who designed and installed the Buccaneer's air conditioning system, chose JE Solenoid valves.

Unconditionally guaranteed for 18 months.

All JE Solenoid Valves have these five Major Features of Dependability:

- Tight Seating—no bubble tolerance
- Simplicity—only two moving parts
- Long Life—cool coils
- Durability—all corrosion-resistant material
- Opening Pressure Differential—higher than most others on the market

See your Local Refrigeration Wholesaler, or write us today for details.

JACKES-EVANS MANUFACTURING COMPANY

4427 GERALDINE AVE. • Controls Division • ST. LOUIS 15, MISSOURI

Circle No. 10 on Reader Service Card

"Precision-Formed Cups on NIBCO Wrot Fittings Save Me Silver Solder"

Solder cups on NIBCO Wrot Fittings always fit the tube *just right.* That's because they are formed from tubes with mirror-polished dies, held to "gnat's whisker" tolerances.

Through its continuing program of research and engineering NIBCO has developed a full line of wrot fittings which have these important advantages:

- **Heat up fast—save time.**
- **Fit exactly—save solder.**
- **No weak spots—joints are stronger than the tube itself.**

It's just good business to specify NIBCO Wrot Fittings. Costwise they are a minor part of an installation yet they are mighty important protection against fitting failure, loss of refrigerant and loss of your time. *To be sure, specify NIBCO.*

NORTHERN INDIANA BRASS CO., 1214 PLUM STREET, ELKHART, INDIANA

Circle No. 11 on Reader Service Card

IF YOU WERE Your Prospect

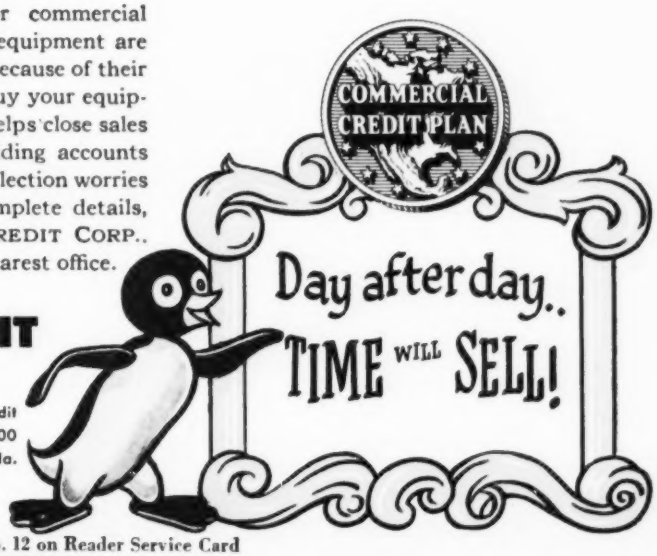
which deal would YOU buy?

Feature Time Payments to close more sales with the *COMMERCIAL CREDIT PLAN*

MORE AND MORE prospects for commercial refrigerating and air conditioning equipment are becoming, of necessity, TIME BUYERS. Because of their cash position it's the only way many can buy your equipment. The COMMERCIAL CREDIT PLAN helps close sales . . . improves your cash position by avoiding accounts receivable. And you turn your credit and collection worries over to COMMERCIAL CREDIT. For complete details, facts and figures, write COMMERCIAL CREDIT CORP., 14 Light Street, Baltimore 2, Md. or our nearest office.

COMMERCIAL CREDIT CORPORATION

A service offered through subsidiaries of Commercial Credit Company, Baltimore . . . Capital and Surplus over $135,000,000 . . . offices in principal cities of the United States and Canada.



Circle No. 12 on Reader Service Card

Any way you look at it, *Thermopane* means BIGGER SALES!

How to be sure the glass in a refrigerated case is sealed from dirt and moisture
Only *Thermopane*® insulating glass has the famous *Bondermetic Seal*® which prevents moisture and dirt from getting between the panes. This seal is metal-to-glass . . . no organic material that can deteriorate or leak.
To make sure the next case you buy has a *Thermopane* visual front, look for the *Thermopane* name imprinted on the seal between the panes. You'll find it on all the better refrigerated cases.
LIBBEY·OWENS·FORD GLASS COMPANY
3673 NICHOLAS BUILDING
TOLEDO 3, OHIO
L·O·F GLASS
Thermopane
INSULATING GLASS
LOOK FOR THE NAME ON THE SEAL BETWEEN THE PANES

When you give your customers a look at your refrigerated cases, point out the *Thermopane*® insulating glass fronts. Let them see how *their* customers get a better look at frozen foods through this sealed glass unit.

Your customers have been reading ads like the one above in their own trade publications. Why not take advantage of it?

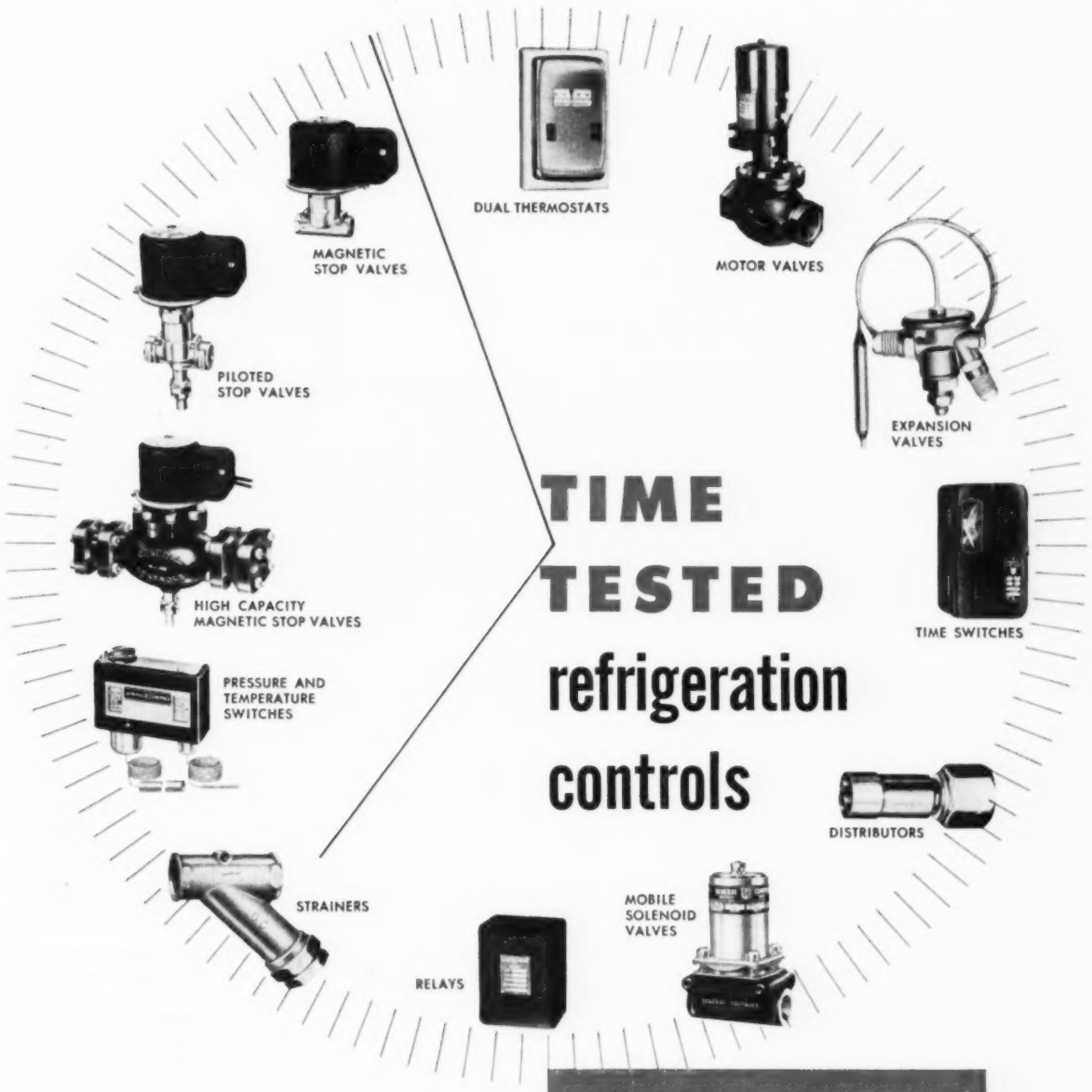
And to help close sales, you can display reprints of these ads. Write Libbey·Owens·Ford Glass Company, 29123 Nicholas Building, Toledo 3, Ohio, for proofs.

Your customers are looking (or have looked) at this ad in:

ICE CREAM REVIEW.....JULY

QUICK FROZEN FOODS...NOVEMBER

MEAT MERCHANDISING....DECEMBER



TIME TESTED refrigeration controls

For 23 years the name "General Controls" has been identified with the "best" in residential and industrial heating controls. During these years General Controls has also been serving the refrigeration industry with a quality line of automatic controls. Fully proved by years of service, General Controls provides a full complement of time-tested controls for heating, refrigeration and air-conditioning systems, both commercial and residential. For one source of supply and a single responsibility, get acquainted with General Controls through your nearest factory Branch Office.

General Controls for *Commercial* refrigeration and *Residential* air-conditioning

GENERAL CONTROLS

FACTORIES: GLENDALE, CALIF., BURBANK, CALIF., SKOKIE, ILL.

FACTORY BRANCHES IN 35 PRINCIPAL CITIES

SEE YOUR CLASSIFIED TELEPHONE DIRECTORY

Manufacturers of Automatic Pressure, Temperature, Level and Flow Controls for Heating, Home Appliances, Refrigeration, Industrial and Aircraft Applications.

Circle No. 13 on Reader Service Card

ABOUT PEOPLE

Don V. Petrone has been named president of the Typhoon Air Conditioning Co., Inc. **J. F. Dailey,** former Typhoon president, was elected to the newly created office of chairman of the board. Petrone joined Typhoon in 1935 in the engineering department and later transferring to sales. After World War II service in the U. S. Army he rejoined Typhoon in 1945 as sales manager, and in 1947 was elected vice president in charge of sales. Petrone was one of the earliest advocates of packaged air conditioning, and has been directly responsible for many improvements and innovations in its application. Dailey, who was president of Typhoon from 1931, also holds the office of treasurer of the Typhoon Prop-R-Temp Corp. of Florida, a Typhoon affiliate corporation set up to manufacture and distribute heat pumps.

D. V. Petrone

•

Joseph A. Grazier has been elected president of American Radiator & Standard Sanitary Corp., succeeding **Theodore E. Mueller,** who has been elected chairman of the board of directors. Grazier has been serving as president since June, and before that was executive vice president. He is also a director and member of the executive committee of the corporation. Mueller had served as president of the corporation since 1946.

J. A. Grazier

James J. Secor, Jr. has been named field representative of the Fiber Glass Div. of Libbey-Owens-Ford Glass Co. in the New York trade area. Secor has had seven years of background in fiber glass, most of it in the field of electrical applications. He recently spent a few weeks at the LOF factory in Parkersburg, W. Va., preliminary to joining the New York sales staff. Here he will work closely with Thomas L. Carver, district manager of fiber glass sales.

•

Robert E. Drury has been appointed director of manufacturing of Redmond Co., Inc. He will be responsible for manufacturing and public relations in three company plants. Before joining the firm he was associated with Chrysler Corp.

•

Paul O. Domke has been transferred from Mueller Brass Co.'s main office at Port Huron, Mich to the company's Los Angeles office. For the past 16 years Domke has been conducting educational and promotional meetings for refrigeration wholesalers and service men throughout the United States and Canada. From his new headquarters at Los Angeles, he will be able to give thorough coverage to the West Coast area, from Canada to Mexico and east to the Rockies. Domke is a former chairman of the National Safety Committee of the Air-Conditioning and Refrigeration Institute.

•

John W. Brown, vice-president in charge of dealer sales of National Gypsum Co., was elected president of the National Mineral Wool Assn. at its annual meeting. **E. K. Clark,** vice president of Johns-Manville Sales Corp., was elected vice president of the association. **Paul A. Voigt,** of Johns-Manville, was re-elected treasurer.

John F. Curd has been appointed Cincinnati district office manager for Sterling Electric Motors, Inc. He was formerly an electrical supervisor with General Electric.

•

Walter A. Grant has been elected a vice president of Carrier Corp. Grant will head the newly created central engineering staff of the corporation. A member of the organization since 1928, Grant for the last five years was director of research for Carrier. With the late Dr. Willis Carrier and R. E. Cherne, Grant was co-author of the recently revised textbook and basic engineering guide, "Modern Air Conditioning, Heating and Ventilating."

•

William W. Quitmeier has been named Chicago district manager of Connor Engineering Corp., to supervise industrial and commercial sales of air diffusers and activated carbon air recovery equipment Quitmeier was formerly with Powers Regulator Co.

•

Frank W. Jamieson has been elected secretary of Viking Copper Tube Co. Jamieson joined Viking after graduation from John Carroll University and was appointed office manager in 1950. Viking is a manufacturer and supplier of copper tubing to various types of industrial concerns.

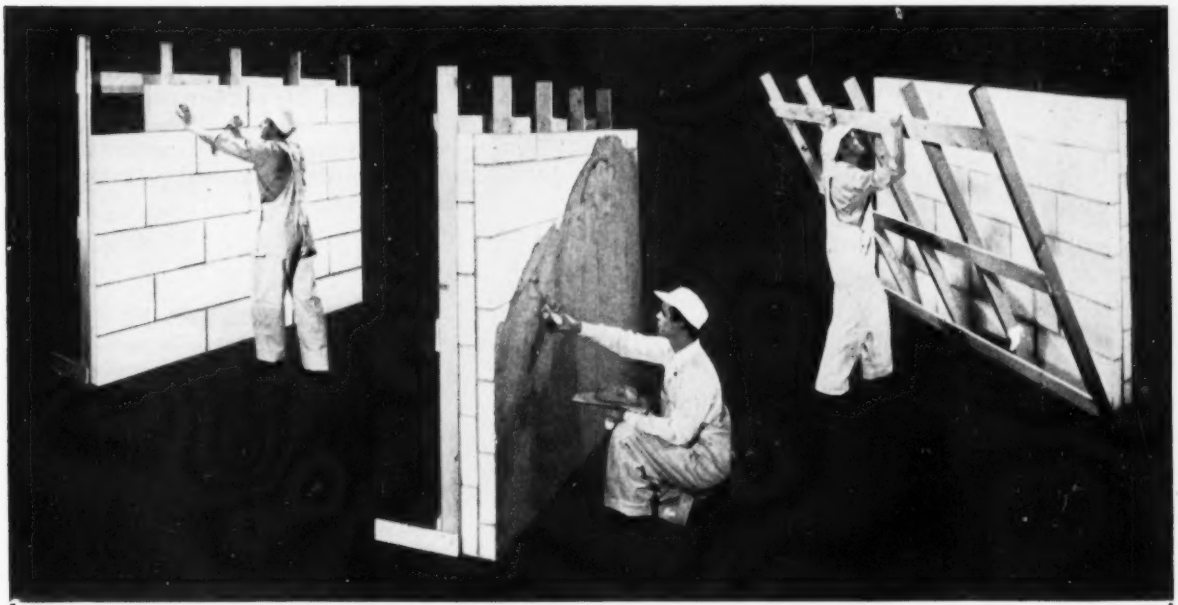
•

Harold Hansen has been appointed field representative and **Hollis L. Farrow** has been appointed field service engineer for

DOW

STYROFOAM INSULATION OFFERS CONSTRUCTION ECONOMIES

For example, self-supporting partitions of this high structural strength, rigid-type insulation are easily and inexpensively installed



1. Self-supporting Styrofoam partitions require that at least two layers of Styrofoam be used, supported directly on the sub-floor (before the floor insulation is laid). The first layer of Styrofoam boards is snugly tied to a temporary 2 x 4 studding framework.

2. The second layer of Styrofoam boards is adhered to the first by means of a ¼" coat of Portland cement mortar and wooden skewers.

3. After the mortar is set (at least 3 days) the exposed surface is finished with two ¼" coats of Portland cement plaster. When this plastered surface has set, the temporary framework is removed and the other side of the wall plastered.

The Dow Chemical Company
Plastics Department, PL 1491, Midland, Michigan

Please send me your booklet containing information on Styrofoam, the most nearly perfect low-temperature insulation material.

Name_____

Title_____

Company_____

Address_____

City_____ State_____

Styrofoam®, a lightweight plastic foam made by expanding Dow polystyrene approximately 10 times, is a big problem solver and money saver in the building of self-supporting partitions. No money or labor is required for other supports because Styrofoam is strong enough to stand alone.

Styrofoam has proved in laboratory and field tests to be the most nearly perfect low-temperature rigid-type insulation material yet developed. Its composition of non-interconnecting cells provides exceptionally high resistance to water and water vapor. Other major advantages of lightweight, odorless Styrofoam include its ease of fabrication, long service life and resistance to rot and mold.

For more detailed specifications and applications of Styrofoam, write for the free Styrofoam data booklet. THE DOW CHEMICAL COMPANY, Plastics Department, Midland, Michigan.

you can depend on DOW PLASTICS

DOW

Circle No. 14 on Reader Service Card

Williams Div., Eureka Williams Corp. Hansen will cover territory in northern Illinois and Indiana, which includes 29 counties in the two states. He has been a manufacturer's representative for the past five years for Certified Furnace Co., Char-Gale Mfg., and Maid-O-Mist, Inc. Farrow will have charge of installation and service functions in Maine, Massachusetts, Connecticut, New Hampshire and Rhode Island.

BUY FROM YOUR REFRIGERATION WHOLESALER

Allen S. Carpenter has been appointed manager of General Control Co.'s Omaha, Neb., branch office. He has been with the company since 1950 in sales and customer service.

•

Louis F. White and **Fred A. Weber** have been appointed district sales managers for the Air Conditioning Div. of Remington Corp. Both men will work directly with Remington's recently appointed regional sales manager, **John P. Moffitt.** White will represent Remington room air conditioner sales in six New England states and in the Albany-Troy, N. Y. trading area. Weber will be in charge of the metropolitan New York trading area and New Jersey.

•

Robert P. Allison has been appointed manufacturing consultant to General Electric Co.'s Weathertron Dept. Allison will be concerned with co-ordinating manufacturing facilities with product development. Allison has been with G-E since 1935. He was formerly manager of manufacturing of conduit products for the company's construction materials department in Bridgeport, Conn.

•

Thomas K. Wells has been appointed general sales manager of Flexonics Corp. Wells fills a new post as over-all sales direction of the company has been under an executive council since 1950. Also appointed to sales positions are **Howard W. Griesbach,** who has been appointed assistant sales manager for the bellows division, and **Richard H. Sabel,** named to the position of sales development manager. Wells has been with the firm for 12 years and was formerly sales manager for the bellows and aircraft divisions.

T. K. Wells

•

C. M. toeLaer has been appointed manager of commercial engineering of General Electric Co.'s home heating and cooling department. **T. N. Willcox** has been appointed as application engineer for the same department. As manager, toeLaer will be responsible for all application engineering and product service of the home heating and cooling department. Willcox,

You don't have to wait until the moisture is picked up by a cartridge drier. Thawzone will travel through the system and pick up the moisture quickly.

Thawzone quickly reaches ALL the moisture . . . even if it is clinging to the pores of castings or tubing . . . or even if it is floating in the receiver.

Furthermore, Thawzone does a more complete job of eliminating moisture problems. Compare this patented liquid drier to any other product available:

YOUR PRESENT METHOD	THAWZONE	
☐	☑	Can it act in all parts of the refrigerant within 2 minutes?
☐	☑	Can it destroy moisture instead of merely being a "sponge" or an antifreeze?
☐	☑	Is it an ordinary product or a patented invention?
☐	☑	Is it free of any effect whatsoever on pressures?
☐	☑	Is it free of any possibility of being clogged with oil?
☐	☑	Does it neutralize acids?
☐	☑	Does it cost only about 8c per lb. of refrigerant protected?

You can use Thawzone in practically any "Freon" or methyl unit. Your wholesaler has Thawzone. Phone him now. Highside Chemicals Co., 10 Colfax Ave., Clifton, N. J.

THAWZONE®

The Only Product That Destroys Water... and Reaches All of it

Circle No. 15 on Reader Service Card

We want only the best up there—

so we're using Honeywell Air Conditioning Controls!

Most people would agree: cartoonist Crockett Johnson's Mr. O'Malley has some very pixie notions about building construction.

But everybody will support his practical approach to temperature control.

The plain fact is—there's no better guarantee of dependable, trouble-free operation than the Honeywell name on automatic controls for air conditioning and refrigeration.

That's why it's wise to make your first choice Honeywell Controls—just as leading architects, builders and consumers do, all over the nation. For full information—or an 8½" x 9" personalized reproduction of this Johnson cartoon—write today to Honeywell, Dept. CR-12-159, Minneapolis 8, Minnesota. In Canada, Leaside, Toronto 17, Ontario.

MINNEAPOLIS **Honeywell**

First in Controls

Circle No. 16 on Reader Service Card

with the firm since 1936, won the company's highest award, the Coffin Award, in 1946. **R. F. Hertel** has been named manager of manufacturing at the Bloomfield plant in that department, and **L. H. Hirschbach** has been appointed manager of builder sales for the department.

•

In two major executive appointments at Affiliated Gas Equipment, Inc., **James A. Hughes,** a vice president of AGE and general manager of its Bryant Heater Div. since 1951, has been appointed assistant general manager of AGE in addition to his regular duties with Bryant. **Howard L. Clary** has been appointed assistant general manager of Bryant effective Nov. 1. Clary has resigned as vice president of Norge Div. of Borg-Warner Corp. Hughes joined Bryant in 1949 as assistant general manager and was appointed general manager in February, 1951. Clary joined Norge in 1945 and was elected a vice president in 1950.

72-Piece Complete Set—or Choose a Piece at a Time

Refrigeration service men who want to be sure of doing jobs easier — better — faster, use these Duro-Chrome Refrigeration Tools — each one designed for a specific job. Include range of sockets, hexagon, square and special purpose, with the famous Duro-Chrome Reversible Refrigeration Ratchet and extensions. Also tools to bend, cut and flare tubing, with special flare nut box wrenches to turn flare nuts without distorting the flare joint. The box wrenches, amber handled screw drivers and long type hexagon set screw wrenches include all sizes used on compressors, motors and controls. All complete in green hammerloid sturdy enameled finish metal box, with handy lift-out tote tray. These Duro-Chrome Refrigeration Tools can also be brought separately, if you prefer.

Get Your **DURO-CHROME** *Pocket Catalog*

Y-422

ASK YOUR DURO JOBBER—*for a free copy of the Pocket-Size Duro-Chrome Tool Catalog; or send 10c in coin, with coupon below, to Duro Metal Products Co.*

MAIL COUPON FOR DURO-CHROME POCKET-SIZE CATALOG

DURO METAL PRODUCTS COMPANY
2649 N. Kildare Ave., Chicago 39, Ill.

Please send my copy of the DURO-CHROME Pocket-Size Catalog for which I enclose 10¢ in coin to cover costs of postage and handling. Address to me, personally.

My Name_____
Address_____
City_____ Zone____ State_____

ALSO MAKERS OF NATIONALLY ADVERTISED DURO POWER TOOLS

Circle No. 17 on Reader Service Card

R. E. Nixon of Amarillo, Tex. has been appointed special sales representative for Revco, Inc., Deerfield, Mich., manufacturer of food freezers. Nixon, formerly sales manager of Thomsen's Wholesale Co. of Amarillo, will represent Revco in Texas, New Mexico and parts of Oklahoma.

•

Appointment of **Walter R. Murray** as sales promotion manager of United States Air Conditioning Corp. has been announced by L. P. Hanson, vice president in charge of sales. Murray was formerly with Vance Pidgeon & Associates advertising agency, Minneapolis. Prior to that he was with the Merchandising Div., Minneapolis-Honeywell Regulator Co.

•

Two appointments have been made in the sales staff of McCray Refrigerator Co., Inc. **Clair L. Miller** has been appointed district sales manager for the sixth district, replacing E. E. Barbee, who resigned. **J. E. Little** has been named manager of sales for "Birkenwald" shelving. He will also continue as district manager in charge of Canadian sales for the firm.

•

John D. Small, formerly chairman of the Munitions Board of the U. S. Department of Defense, has been elected executive vice president and a director of Quiet Heet Mfg. Corp., a subsidiary of Emerson Radio and Phonograph Corp. Small was vice president and executive assistant to the president of Emerson before he resigned to take the government position. He has held several high

government offices and has been president of Maxson Food Systems, Inc., and executive vice president of Dry-Ice Corp. of America.

•

Three appointments to managerial positions have been made by American Radiator & Standard Corp. **Robert F. Sells** has been named general manager of branches, **Joseph Salamone** has been named manager, branch house operations, and **Daniel J. Quinn** has been appointed sales manager of the plumbing and radiator heating division.

•

John P. Moffit has been appointed regional sales manager for the Air Conditioning Div. of Remington Corp. Moffitt will have overall responsibility for the territories of New York, New Jersey and New England, including metropolitan New York, and will take over the operation of Remington's New York office. He joined the firm in 1952 as a district sales manager for New England. He was formerly vice-president in charge of air conditioning and appliance sales and service for Downes-Smith Co., Stamford, Conn.

•

Louis I. Gilgor, an accountant since 1918 and a member of the Philadelphia bar since 1926, has been named controller for the Jordon Refrigerator Co.

•

Joseph Caldwell, Jr., has been appointed assistant general sales manager of Mills Industries, Inc. He has served as vice president in charge of engineering and production of Forest Electric Co.; chief engineer, special products division, Essex Wire Corp.; and for eleven years as division engineer and sales engineer of Jefferson Electric Co.

H. M. Steel Swift has been named field engineer for the New England area by the Spencer Thermostat Div. of Metals & Controls Corp. He was previously in charge of production and sales for Stand-and Thermometer, Inc.

•

Victor E. Reed has been appointed field sales representative in the Boston metropolitan area for Williams Div. of Eureka Williams Corp. Maintaining headquarters at Haverhill, Mass., Reed was formerly plumbing and heating manager of Haverhill Hardware and Plumbing Supply Co.

•

George W. Clausen has been appointed district sales manager for Manitowoc Equipment Works. He will direct Manitowoc home freezer sales activity in California, Arizona and Nevada.

Features that spell value...

Grand Rapids Brass Refrigerator Hardware

Whether for original equipment or replacement, Grand Rapids Brass locks and hinges provide a rugged, handsome finishing touch that spells quality and value. And they cost no more. That's why leading manufacturers and jobbers specify Grand Rapids Brass. You can be sure with any Grand Rapids Brass lock—when it trips . . . it grips!

The NEW, heavy-duty Edgemount Lock is chrome-plated, operates easily, installs quickly. Surface-mounting eliminates mortising of wood or stamping. Fully reversible lock mounts on either side of door, handle up or down. Strike adjustment 7/16" to 1/2".

Oil impregnated bronze bushings in this hinge provide two-way protection against tension and thrust. Requires no lubrication. A heavy-duty hinge.

Write for Complete Illustrated Information

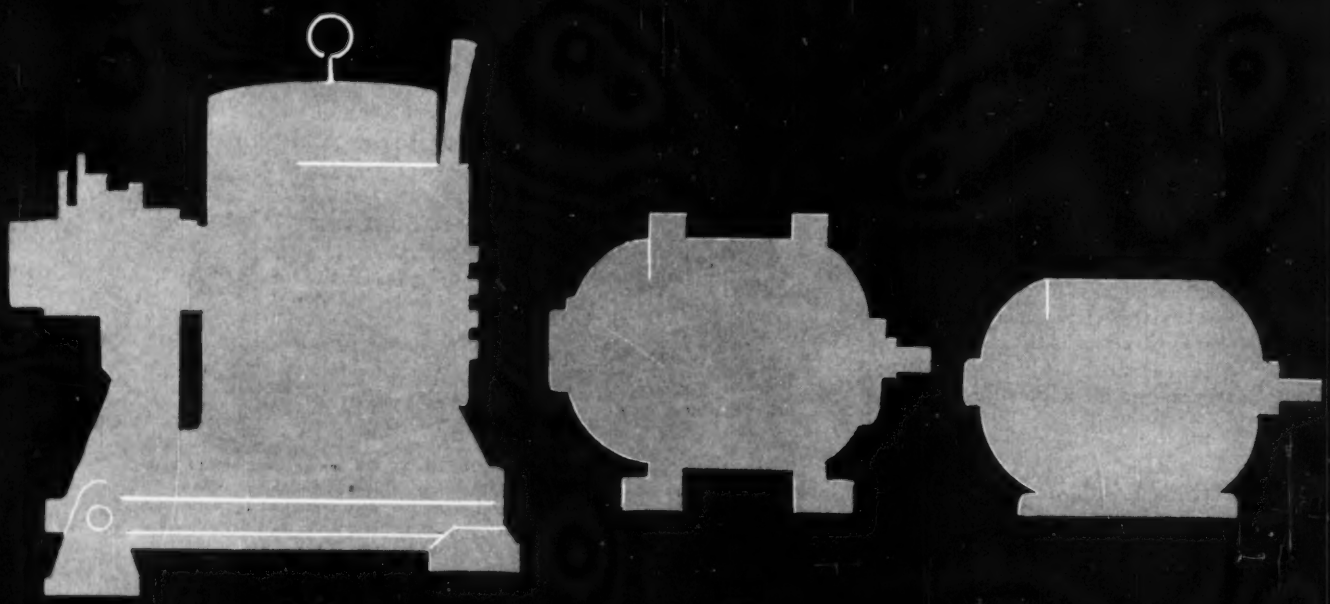
Grand Rapids Brass Company

DIVISION OF CRAMPTON MANUFACTURING COMPANY
GRAND RAPIDS, MICHIGAN

Suppliers to the Nation's Leading Automotive, Refrigeration and Plumbing Manufacturers

Circle No. 18 on Reader Service Card

WHAT'S NEW IN MOTORS



1888
TESLA
5 H.P.
765 LBS.

1926
CS
5 H.P.
130 LBS.

1947
LIFE-LINE
5 H.P.
119 LBS.

IS STILL TO COME . . .

Hear anything about a new motor? Well, if you think you have, let's set the record straight . . . What's New In Motors Is Still To Come!

Westinghouse has been a leader in the designing and manufacturing of motors for over 60 years. During these many years, over 20 million dollars has been spent on the development of basic lines of induction motors to maintain this leadership. Here are the real years of "new motors" in the parade of progress:

1888—*THE FIRST A-C MOTOR—THE WESTINGHOUSE TESLA MOTOR*

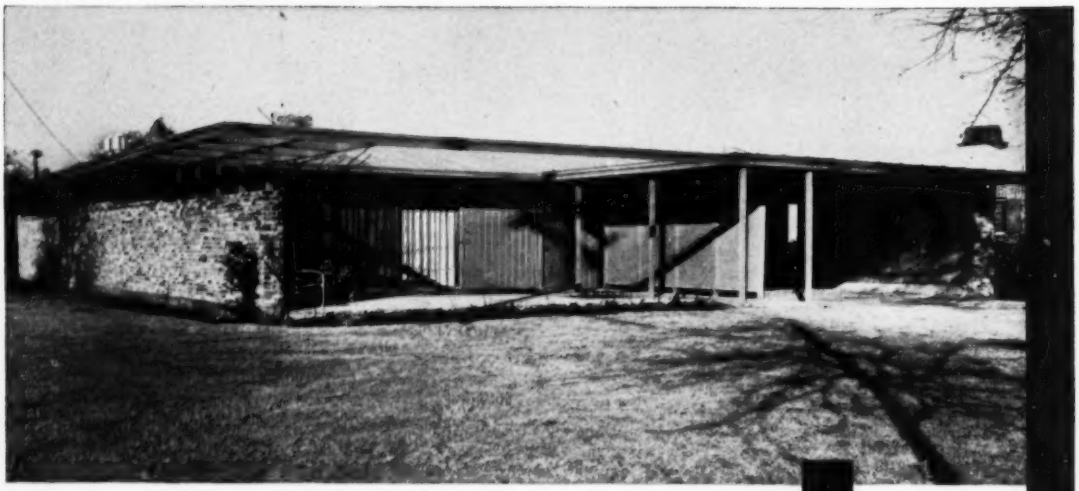
1926—*THE FIRST SEALED SLEEVE BEARINGS—THE WESTINGHOUSE CS MOTOR*

1947—*THE FIRST MOTOR WITH PRE-LUBRICATED BEARINGS PLUS A ⅓ WEIGHT AND SIZE REDUCTION—THE WESTINGHOUSE LIFE-LINE MOTOR*

The smaller, lighter Westinghouse Life-Line Motor of 1947 was the last major contribution. *AND FOR THE NEXT ALL-IMPORTANT STEP AHEAD IN MOTOR PROGRESS . . . LOOK TO WESTINGHOUSE.*

YOU CAN BE SURE.. IF IT'S Westinghouse

J-21834

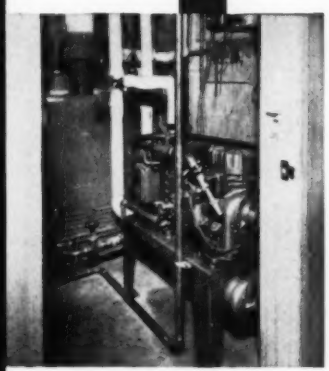


The new home of Herman Blum which received a second honorable mention from the Dallas Chapter of American Architects.

Prize-Winning Home

healthfully air conditioned

by Acme FLOW-COLD®



The Flow-Cold Liquid Chiller fits conveniently in a hall closet to provide a central cooling plant for the whole house.

A central air conditioning plant that fits snugly into a hall closet is just one of the many outstanding design features of this functional modern home located in Dallas, Texas. Selected for its compact size, quiet and efficient operation was the Acme Flow-Cold Packaged Liquid Chiller. Design conditions called for the unit to cool 15 GPM of water from 53 degrees to 45 degrees, thus handling a load of 5 tons. By keeping this 3-bedroom ranch type home comfortable in the hottest Texas weather, the Acme Flow-Cold has proved the wise choice of consulting engineer, Mr. Herman Blum, and the efficient installation of the Beard Plumbing Co.

The Flow-Cold Packaged Chiller was installed in conjunction with a hot water boiler and circulates chilled water in the summer and hot water in winter, with convectors in each room for year-round air conditioning. Versatile, easily installed and pre-tested at the factory, the Acme Flow-Cold can be used effectively by you in your next job — whether you are designing or building homes.

Write us today for more complete information.

ACME INDUSTRIES, INC.

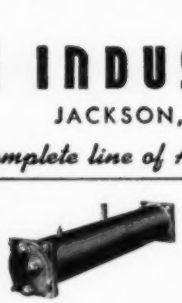
JACKSON, MICHIGAN

Mfgs. of a complete line of Air Conditioning and Refrigeration Equipment

Evaporative Condensers
Cooling Towers
Floor-type Unit Coolers

Direct Expansion (Dry-Ex) and Flooded Liquid Chillers

Heat Exchangers, Oil Separators



Shell and Tube, Shell and Coil Condensers

Receivers, Pipe Coils

Packaged Liquid Chillers to 225 tons

Flow-Temp Heat Pumps

Flow-Cold Liquid Chillers

Remote Room Conditioner

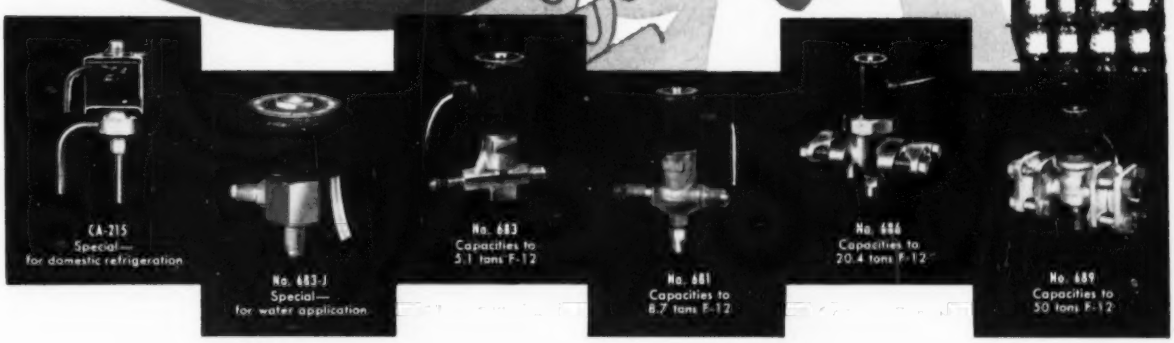
Continuously serving the refrigeration and air conditioning industry since 1919

Circle No. 21 on Reader Service Card

Have a Solenoid Problem?

LET US HELP YOU SOLVE IT!

If you need a Solenoid Valve for air, water, steam or refrigerants in capacities to 50 tons Freon-12, call on DETROIT. Chances are, you'll find an immediate solution with a standard DETROIT model. If not, for some special applications DETROIT will design a valve to meet your requirements. Either way, you'll find it pays to call on DETROIT—your Specialist in Solenoids.



DETROIT-Controls CORPORATION

ESTABLISHED AS DETROIT LUBRICATOR COMPANY IN 1877

5900 TRUMBULL
DETROIT 8, MICHIGAN

Division of American Radiator & Standard Sanitary Corporation

Canadian Representatives in Montreal, Toronto, Winnipeg—Railway and Engineering Specialties, Ltd.

AUTOMATIC CONTROLS for REFRIGERATION

AIR CONDITIONING • DOMESTIC HEATING • AVIATION • TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KEWANEE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS

Circle No. 22 on Reader Service Card

Large Curvette

by KRAMER

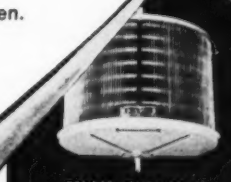
HINGED PAN

quick and *easy* access

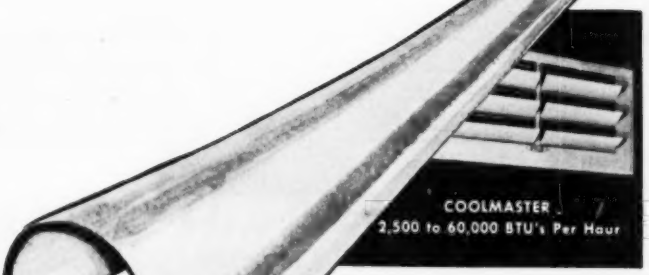
Praised for years by installation and service men.

Built-in Heat Exchanger

NO RUSTING — polished aluminum casing



SMALL CURVETTE
800 to 5,600 BTU's Per Hour



COOLMASTER
2,500 to 60,000 BTU's Per Hour

RADIAL
2,500 to 23,000 BTU's Per Hour

KAY-TEE
2,500 to 12,000 BTU's Per Hour

WRITE NOW
FOR
BULLETIN C-192-7

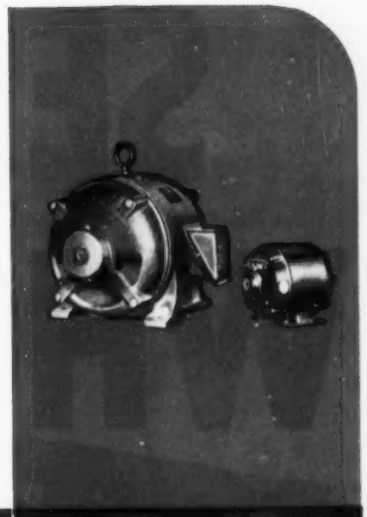
KRAMER TRENTON CO. • Trenton 5, N.J.

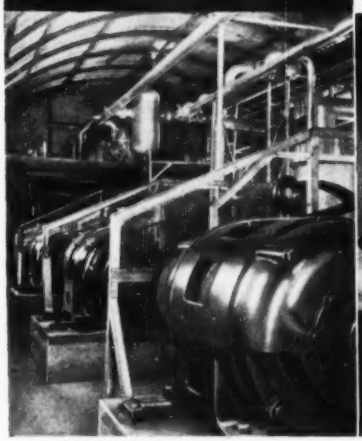
Circle No. 23 on Reader Service Card

Large or Small...

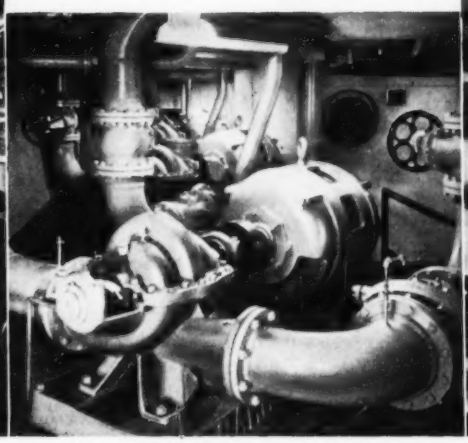
Century MOTORS

Are Designed to Provide All the Performance That Is Built Into the Machines They Drive

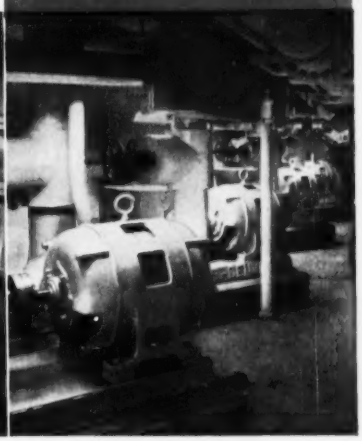




Century 125 H.P. motors driving ammonia compressors for ice for the Falcon Dam, which is under construction on the Rio Grande River.



Century 125 H.P. motors on circulating pumps for condensing units. They serve the refrigeration system of a large department store.



Century 125 H.P. motors on circulating pumps for chilled water. Used in the same department store.

Your nearby Century District Sales Office or a convenient authorized Century Distributor will be glad to give you complete information.

Here are some typical examples of equipment powered by large Century motors, which were application engineered for TOP PERFORMANCE.

Matching the operating characteristics of your equipment is made easy through Century's wide line of single phase, polyphase and direct current motors to choose from. They are made in many types, ranging in size from 1/8 to 400 horsepower, with literally hundreds of specifications adaptable to specific applications.

Get Top Performance of your equipment through skillful motor application by specifying Century motors on the equipment you buy and for replacement.

CE780

CENTURY ELECTRIC CO.
1806 Pine St., St. Louis 3, Missouri
Offices and Stock Points in Principal Cities

Circle No. 24 on Reader Service Card

SEE YOUR WHOLESALER

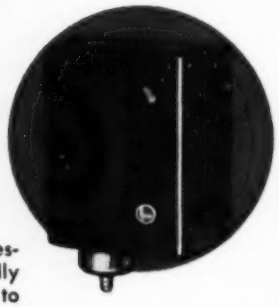
ask for the PENN *Complete Line* of Cooling Controls

Whatever the control job . . . refrigeration or air conditioning . . . your wholesaler has a PENN precision-built automatic control that will do the job better . . . and make more money for you.

Costly service call-backs stop . . . and customers "talk you up" because of efficient on-the-job performance by PENN Controls. Quality . . . long years of service . . . customer satisfaction . . . are a PENN tradition.

In the PENN complete line there is a type to fit your needs exactly. Investigate the profit . . . get your free copy of PENN's Condensed Catalog and price list. Ask your Wholesaler or write **Penn Controls, Inc., Goshen, Indiana.** Export Division: 13 E. 40th Street, New York 16, N. Y., U.S.A. In Canada: Penn Controls Limited, Toronto, Ontario.

Series 246 Water Valves are zoned to keep water out of sliding parts . . . are built in threaded and flanged styles for all refrigerants and in sizes from ⅜" to 2½".



Penn Series 325 Time-Pressure Defroster automatically varies the defrost period to satisfy load conditions . . . eliminates seasonal adjustments . . . avoids unnecessary shut-down time.

Series 275 Oil Protection Control with built-in Time-Delay Switch for use on all pressure-lubricated refrigeration compressors.

Penn Series 270 temperature and pressure controls have direct reading calibrated scale which shows both cut-in and cut-out points.

PENN

Remember . . . there is a difference in controls

AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

Circle No. 25 on Reader Service Card

BTU NEWS · LAWS · TRENDS

YOUR CUSTOMERS CAN ANTICIPATE an average of between $25 and $40 a week in sales for each foot of frozen food cabinet space, according to recent studies. The widely accepted formula on the sales volume-per-lineal-foot-of-cabinet space is $25, and this figure was found to be correct by an IGA store survey. Red & White stores discovered that its members were averaging $40 a week sales for every foot of space.

HIGH VELOCITY AIR distribution systems represent a trend, not a fad, in the opinion of C. M. Wilson, sales manager of Anemostat. Addressing a meeting of ASHVE members in Chicago recently, Wilson said that within a few years, virtually all air conditioning systems of 75-ton size or larger will incorporate high velocity, high pressure air distribution systems. He classified such systems as those which generally require the use of special devices for the attenuation of sound and dissipation of pressure and velocity near the air outlets. Advantages of this type of system, he said, include savings in space required for ductwork, savings in duct material and the cost of ductwork, savings in floor heights in multi-story buildings, and less "butchering" of existing buildings in installing air conditioning. For contractors, the smaller ducts lower labor costs.

FREEZING BEER AND ALE to make bulk handling and storage easier has been successfully achieved by the Brewing Industry Research Foundation in England. Experiments have proved that beer could be reduced by three-quarters of its normal bulk and when reconstituted loses nothing of its vital contents. The purpose of concentration is aimed to assist bulk transport over long distances and bulk storage. Diluted with water and carbonated, the concentrated beverages, which have lost none of the alcohol vitamins or other constituents, make a drink which closely resembles the original.

INDEPENDENT GROCERS reportedly are making a strong effort to expand their sales of frozen foods — to make them equal, and surpass if possible, the sales of fresh fruits and vegetables. Reason for this is that frozen foods now carry the highest profit margins of any products in the grocery department, whereas most other products in the store are in most cases low-profit items. Additional display case footage, and installation of low temperature storage facilities, enter importantly into the stores' overall programs. The 5,500 member stores of the Independent Grocers' Alliance (IGA), according to Don R. Grimes, IGA president, plan to double the footage devoted to frozen foods within the next 18 months. According to Grimes, average lineal footage of frozen foods cases as of December, 1952, was 11 feet per store, or a total of about 60,000 feet.

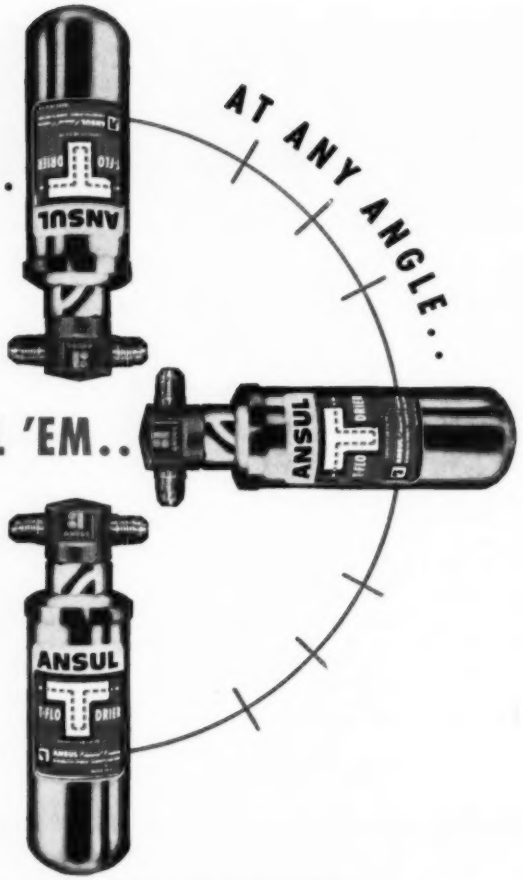
ODORS AND FLAVORS from frozen food products do not contaminate other frozen products if they are properly packaged and held at 0 F, according to Dr. J. G. Woodroof of the Georgia Experiment Station. Non-contamination is true even when onions and fish were adjacent to butter, pecans, and meats. In practically all cases studied at the experiment station it was found that off-flavors in chickens and sweet corn, in particular, developed due to slight spoilage during slow freezing. Prevention of such flavors is an important reason for quick freezing.

HUMIDITY CONDITIONING for the holds of cargo ships may lead to increased shipments by water of many moisture-sensitive cargoes now moved by other methods. Bethlehem Steel Co. and Surface Combustion Corp. have successfully tested a new marine air-conditioning system on a ship traveling from Philadelphia to Seattle by way of the Panama Canal.

VERTICAL . . HORIZONTAL . .

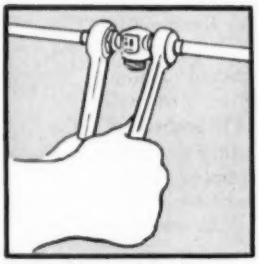
AT ANY ANGLE . .

ANY WAY YOU INSTALL 'EM . .

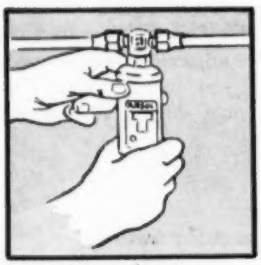


ANSUL T-*FLO* DRIERS

provide GREATER CAPACITY, HIGHER EFFICIENCY, FASTER PICK-UP



Easy to install



Easier to replace

You can easily install Ansul T-*FLO* Driers in tight spots. They work efficiently in any position of installation. And, of course, replacement presents no problem since the fitting stays in the line.

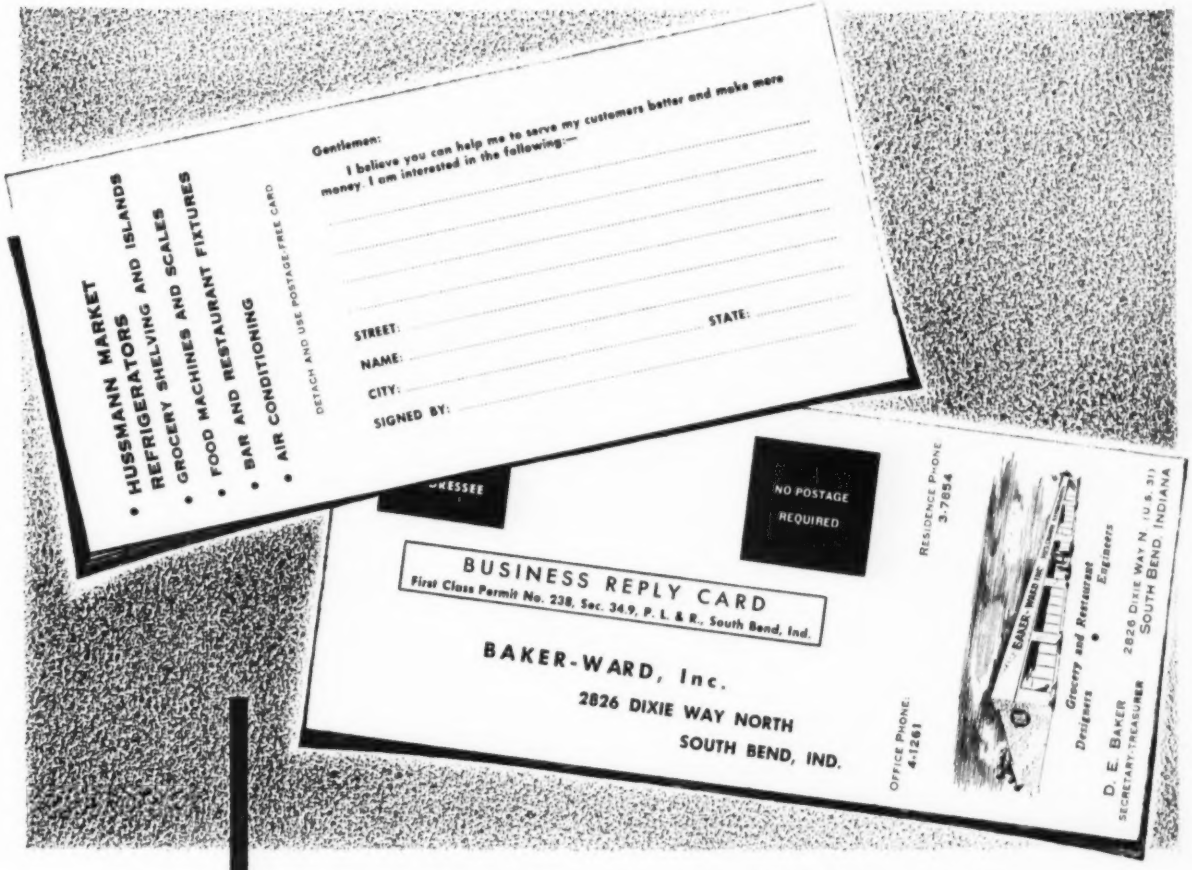
Uniformly sized beads of An*drite*, Ansul's new deep-drying desiccant, contribute greatly to the versatility of T-*FLO* Driers. The Desiccant cannot channel. And regardless of installation position of the drier, An*drite* retains its unexcelled ability to remove harmful moisture and acids.

Ansul T-FLO Driers are sold through Refrigeration Wholesalers exclusively.

ANSUL
Chemical Company
REFRIGERATION DIVISION • MARINETTE, WISCONSIN

MANUFACTURERS OF REFRIGERATION PRODUCTS, INDUSTRIAL AND FINE CHEMICALS, LIQUEFIED GASES AND FIRE EXTINGUISHING EQUIPMENT

Circle No. 26 on Reader Service Card


HUSSMANN MARKET
• REFRIGERATORS AND ISLANDS
• GROCERY SHELVING AND SCALES
• FOOD MACHINES AND SCALES
• FOOD MACHINES AND FIXTURES
• BAR AND RESTAURANT FIXTURES
• AIR CONDITIONING
DETACH AND USE POSTAGE-FREE CARD
Gentlemen:
I believe you can help me to serve my customers better and make more money. I am interested in the following:—
STREET:
NAME:
CITY:
STATE:
SIGNED BY:
NO POSTAGE REQUIRED
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First Class Permit No. 238, Sec. 34.9, P. L. & R., South Bend, Ind.
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RESIDENCE PHONE 3-7854
OFFICE PHONE 4-1261
Designers • Grocery and Restaurant • Engineers
D. E. BAKER
SECRETARY-TREASURER
2826 DIXIE WAY N. (U. S. 31)
SOUTH BEND, INDIANA

How one commercial refrigeration distributor has helped build his business by cultivating . . .

PROSPECTS BY POSTCARD

PROMOTING prospects by mail, through the unique idea of combining a postpaid postcard with each of its regular business cards, has proved an effective means of boosting sales in the far-flung territory of Baker-Ward, Inc., commercial refrigeration distributor in South Bend, Ind.

Covering some 40 counties in three states, the founders of the firm soon realized that it would be physically impossible to contact each prospect as often as desirable to give him a sales pitch. Consequently they cast about for some means of encouraging the prospects to come to them. The solution upon which they settled took the form of an unusual double-duty card.

As shown, this card actually was a combination of a standard business calling card and an orthodox postal reply card, the two being separated by a perforated line making them easily detachable.

Whenever a Baker-Ward salesman made a call, particularly on a prospect in an outlying area, he would leave one of these dual purpose cards as a reminder of his visit. Then, if the prospect should develop an interest in a type of equipment for which he was not in the market at the time of the salesman's call, it was a simple matter for him to request information on this equipment by merely detaching and filling in the business reply card.

The novelty of this type of card stimulated a somewhat mixed reaction, confesses D. E. Baker, secretary-treasurer of the firm. A few self-styled wags simply scribbled some wisecrack across the face of the card and dropped it into the mail. But a far greater percentage of those cards which were returned carried bona fide requests for information which not infrequently resulted in sales when followed up by the representative who left the card.

While no actual statistics ever were kept on the percentage of returns which these cards elicited, or the sales results which they achieved, Baker is firmly convinced that this clever promotional stunt satisfactorily performed the function for which it was intended.

Refrigeration Piping Simplified

by M. R. Paulsen

Manager, Training Department

The Trane Co.

(Reprinted by permission from Trane Co.'s "Weather Magic".)

REFRIGERATION piping can be broken down into two parts — the liquid lines and the vapor lines. The refrigerant is in the vapor state in the hot gas and suction lines. The hot gas line connects the compressor and the condenser. The suction line connects the evaporator and the compressor.

The line connecting the condenser and the expansion valve is known as the liquid line. The lines connecting the expansion valve and the evaporator are a problem unto themselves and will not be discussed here.

We will start with the hot gas line, go on to the liquid line and close with the suction line. Inasmuch as liquid traps are a basic element in refrigeration piping, those will be covered with hot gas lines.

Oil Loss Causes Problems

The thing that tends to complicate refrigeration piping is the fact that all compressors lose a small amount of lubricating oil to the vapor during compression. To avoid starving the compressor crankcase, this oil must be returned by way of the refrigeration circuit. Also to be considered is the fact that some refrigeration systems incorporate capacity control and some employ the pump-down cycle. Where differences in the piping are necessary to accommodate these various kinds of operation they will be pointed out.

This analysis can be broken down into three different arrangements of the condenser with respect to the compressor discharge connection. It makes little difference whether the condenser is the shell-and-tube type or the evaporator type. In the first arrangement, as shown in Figure 1, the condenser is located at the same level as the compressor discharge or below it. In the second arrangement, the condenser is located above the compressor discharge, but not more than 8 feet above it. In the third arrangement, the condenser is located more than 8 feet above the compressor discharge connection. This arrangement is typical of roof-top evaporative condenser installations.

In all cases, the horizontal hot gas piping runs are pitched away from the compressor to assure drainage toward the condenser. Horizontal runs are sized on the basis of an average minimum hot gas velocity of 750 ft. per minute. Vertical risers are sized for an average minimum hot gas velocity of 1500 ft. per minute.

Note the similarity of the piping arrangement. The major difference occurs when the condenser is located more than 8 feet above the compressor discharge. In this case, an oil trap is added to the base of the vertical riser. This trap is necessary to prevent oil draining back into the compressor upon system shutdown.

When the condenser is at the same level as the compressor or below it, the line is generally run up to the ceiling, across to a point directly above the condenser and then down into it. This preferred arrangement permits free movement around the equipment and greater flexibility in the piping. When the vertical riser is more than 8 feet in length, an oil trap should be installed at the base of the riser.

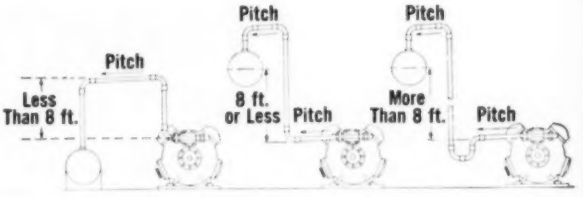
Since oil traps are an integral part of many refrigeration systems, it is important to know why they are necessary and how to make them in accordance with recommended practice.

Oil traps have two functions. They serve as a collector of oil and they provide for entrainment of the oil by the vapor. They are used only in hot gas lines and suction lines where the oil and the vapor are not miscible. The oil is in the form of a mist, while the

hot gas lines

NO CAPACITY CONTROL

FIGURE 1



hot gas lines

OIL SEPARATOR

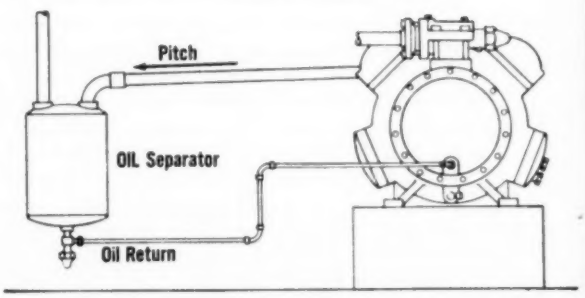


FIGURE 4

refrigerant is a gas. Thus, the only way the oil can be kept moving back to the compressor is to entrain it. When the vapor is traveling at a sufficiently high velocity to keep the mist moving along with it, the oil is said to be entrained by the vapor.

When the system is shut down, the vapor stops moving. In the horizontal lines, the oil drops to the bottom of the pipe to drain in the direction of its pitch. This is the reason for pitching the horizontal vapor lines in the direction of refrigerant flow. In vertical lines, when the system shuts down or when the vapor velocity drops below 1500 feet per minute, the oil drops to the bottom of the line. Without an oil trap at the base of long, vertical risers, enough oil can collect to flow back into the high side of the compressor to cause damage.

Trap Design Is Important

The oil collected in the trap must again be broken up into small particle to form a mist. This is accomplished by vapor sweeping around trap U.

Since the trap is not intended to serve as a reservior of lubricating oil, the horizontal portion should be kept as short as possible. Never enlarge the trap.

As shown in Figure 2, the trap is usually made out of one 90° elbow and one 90° street ell. A trap of minimum depth is formed out of two 90° street ells and one 90° elbow. The upper 90° elbow and the connecting nipple are then replaced by the extra street ell. When the trap is located near the compressor, its legs are generally extended to the floor. However, the trap should not be fixed to the floor nor should it touch the floor. This construction allows greater flexibility in the piping, minimizing piping failure due to vibration.

When a refrigeration system has capacity control, the amount of hot gas flowing through the line can vary considerably. If the vertical riser is sized for a velocity of 1500 ft. per minute at minimum load, the pressure drop in that line at maximum load will be excessive. The piping to avoid the excessive pressure drop is the double riser as shown in Figure 3. In the double riser system, the small line is sized at minimum load for a minimum velocity of 1500 ft. per minute. The larger riser is sized for a minimum hot gas velocity of 1500 feet per minute through both risers at maximum load. The oil trap is a necessary part of this arrangement.

When operating at part load, the hot gas velocity is not sufficient to carry the oil up the line. As a result, the oil drops back down the riser to collect at its base. When sufficient oil has collected to seal the trap, the hot gas flows up the smaller riser at a velocity that will assure carry-over of the oil. When the capacity of the system again increases sufficiently to break the oil seal in the trap, both lines again convey hot gas and oil.

Both risers enter the horizontal line from the top. This is accomplished by the use of inverted traps which prevent oil from draining back into either riser.

A single hot gas riser may be used if an oil separator is installed at the base of the riser. Oil separators, shown in Figure 4 are recommended where

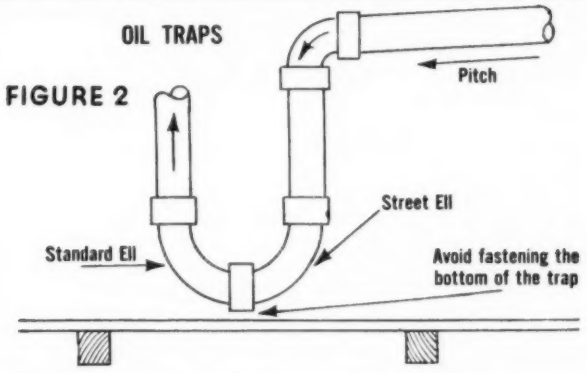


FIGURE 2

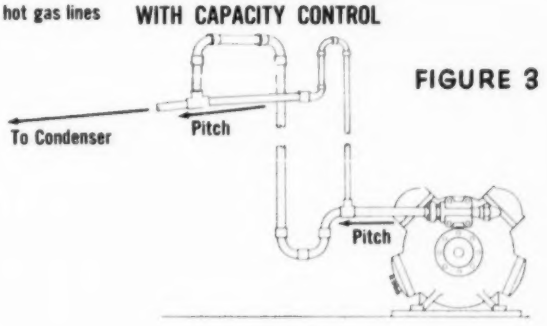


FIGURE 3

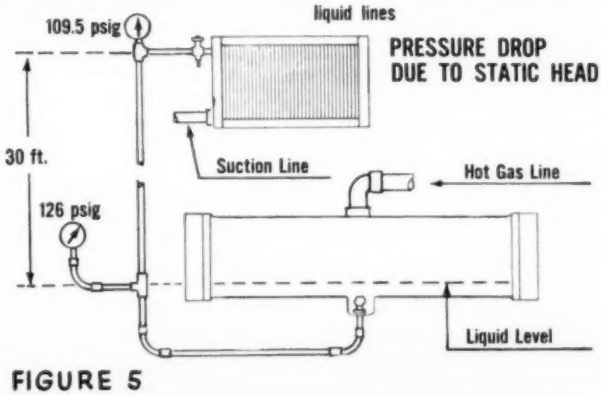


FIGURE 5

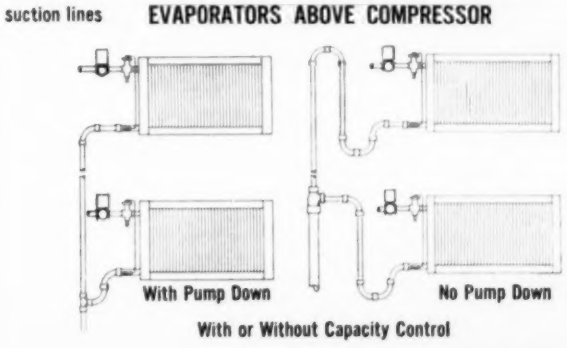


FIGURE 6

system capacity varies widely. They also serve the secondary function of muffling hot gas pulsations generated by the compressor.

The oil separator should be installed reasonably near the compressor to assure the return of the oil to the suction chamber of the compressor. Some compressors are now provided with a pipe tapping near the bottom of the suction chamber for this purpose.

Never allow this oil to return directly into the crankcase of the compressor. It is bound to have some liquid Freon mixed with it. The liquid will flash into a vapor and cause the oil to foam. This condition is dangerous and should be avoided. Should the float valve in the separator stick open, hot gas will blow directly into the crankcase, sweep the oil away from the strainer and the oil pump will lose its prime.

When To Use Oil Separators

Inasmuch as some compressors pump very little oil, oil separators are not necessary except when long vertical risers are used in the system and wide and frequent capacity variation occurs. Separators greatly reduce the amount of oil that must be lifted up long vertical risers.

If the oil separator is installed in an area which may be colder than the liquid receiver, a check valve should be installed in the hot gas line near the condenser. Unless this is done, refrigerant may return directly into the crankcase to the compressor.

Keeping the oil moving with the refrigerant presents no problem when the refrigerant is in a liquid state. This is because Freon-12 and oil have approximately the same density and they mix readily.

In the liquid lines a problem of a different nature must be considered. This is the formation of flash gas due to pressure drop. The pressure drop may be due to either the friction loss in the line or the static pressure drop encountered in lifting the liquid vertically.

Sub-Cooling Avoids Flash Gas

Liquid Freon-12, under conditions normally encountered in refrigeration systems, decreases in pressure approximately 0.55 psi for every foot of vertical lift. Thus, a vertical lift of 30 feet would result in a pressure drop of 16.5 psi, as shown in Figure 5.

For example, if the liquid leaves the condenser at 126 psig, it enters the thermostatic expansion valve at 109.5 psig. Corresponding saturation temperatures are approximately 105° F and 96° F. This is a saturation temperature drop of 9° F. The liquid should be sub-cooled by not less than this amount to avoid the formation of flash gas.

Any pressure drop due to a friction loss in the line under conditions of actual flow, will require additional subcooling. Liquid lines should be sized to hold the pressure drop due to friction below 3 psi.

Ten degrees subcooling is generally considered sufficient for a vertical lift of 25 feet. In a properly sized liquid line this allows for both the vertical lift pressure drop and the friction drop.

Continued on page 45

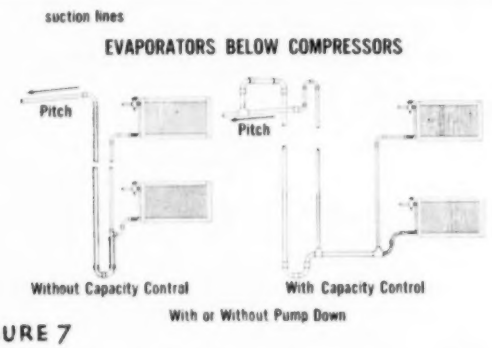


FIGURE 7

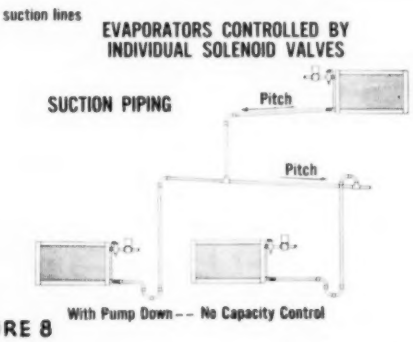


FIGURE 8

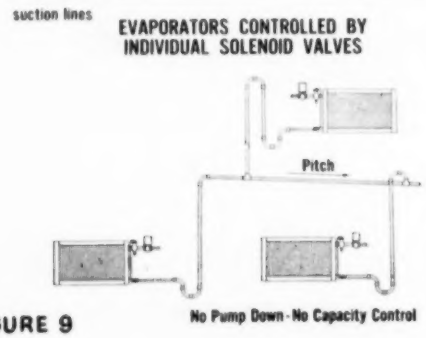


FIGURE 9

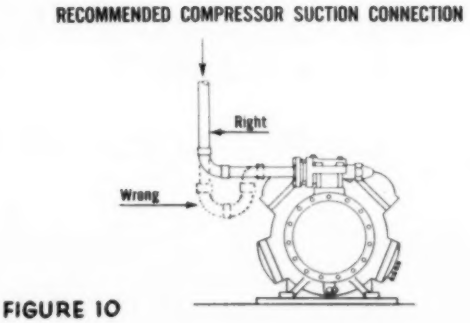


FIGURE 10

NEWS OF THE INDUSTRY

TYLER CHANGES ITS CORPORATE NAME

A change in corporate name from Tyler Fixture Corp. to Tyler Refrigeration Corp. has been approved by the board of directors and company shareholders, according to an announcement by Robert L. Tyler, president.

"The change in name," Tyler explained, "reflects the change Tyler made during the past 26 years, from manufacturing conventional store fixtures to manufacturing a complete line of refrigerated food store equipment."

Along with its expanding activities in the refrigeration field, Tyler also now owns and operates the Harder Refrigerator Corp., manufacturer of "Harder-Freez" chest and upright home freezers, and Wilson Refrigeration, Inc., manufacturer of farm milk coolers, home freezers, and sectional storage freezers.

UNION ASBESTOS CO. IN COOLING FIELD

Union Asbestos & Rubber Co. has entered the domestic, commercial and industrial heating and air conditioning field, Norman C. Naylor, president, announced recently.

The company has taken over the operations of the Nevinger Mfg. Co., of Greenville, Ill., well-known supplier of branded air conditioning units and components to other manufacturers.

The Nevinger facilities will be devoted exclusively to the manufacture of air conditioning units and components. Carl Nevinger, former president of the Greenville firm, will remain in charge as general manager of the operation.

Edwin E. Hokin, vice president of Union Asbestos, will be in charge of the heating and air conditioning division. A nationwide sales organization has been set up with offices in 25 cities. The equipment will be marketed under the trade name "Unarco" now used by the company on its other products.

Air conditioning, refrigeration, heating and plumbing contractors will sell the equipment.

MARLOW ABSORBED BY BELL & GOSSETT

Marlow Pumps, Ridgewood, N. J., manufacturer of self-priming centrifugal pumps, is merging as of Dec. 1 with Bell & Gossett Co., Morton Grove, Ill. manufacturer of hot water circulating pumps, universal pumps, heat exchangers, flow control valves and other heating specialties.

Marlow Pumps, with its main plant in Ridgewood, N. J. and a branch plant in De Queen, Ark., as well as licensed plants in France and England, will continue its present line under the Marlow name. Additional production capacity will be added in the east to manufacture Bell & Gossett's products. Both product lines retain their individual identity throughout sales, marketing and distribution.

Under the new set-up, Marlow Pumps will be known as the Marlow Div. of Bell & Gossett and will be headed by A. S. Marlow, Jr., as general manager. He will also be a vice president and a member of the board of directors of Bell & Gossett.

SERVEL UPS PRICE OF ROOM COOLER

Servel, Inc., has announced that the price of its ¾-hp model RAC-93-1 room air conditioner has been raised from $329.95 to $349.95.

This unit is available in blond or mahogany finish.

RECORD AIR CONDITIONER ORDER

A $1,250,000 ORDER for packaged air conditioners placed with General Electric's Air Conditioning Div. is signed by Louis Lidsky, president of Apparatus Distributors, Inc., G-E distributor for New York and northern New Jersey. Watching the record transaction are, left to right; Bert Natkin, G-E sales representative; Manny Kern, sales manager of Apparatus Distributors; Hank McMenimen, G.E. eastern regional manager; and George Iwashita, general manager of the G-E division's commercial product department.

WARM AIR GROUP MEETS DEC. 2, 3

The National Warm Air Heating & Air Conditioning Association will hold its 40th annual convention Dec. 2 and 3 in Hotel Cleveland, Cleveland, Ohio.

The well-rounded program that has been prepared will include information of interest to all segments of the industry—dealers, wholesalers and manufacturers'—according to M. I. Levy, program chairman.

Included in the list of speakers and their topics are: C. S. Stackpole, vice president, Eureka Williams Corp., "To Sell Ya Gotta Tell"; John Dickerman, executive secretary, National Association of Home Builders, "The Future of New Home Building"; C. E. Price, general manager, American Artisan Magazine, "Market Potentials Based on 1950 Housing Census"; H. O. Chamberlain, modernization market manager, Minneapolis-Honeywell Regulator Co., "Participation in the Modernization Market"; R. C. Jaye, president, Syncromatic Corp., "More Profits in Commercial and Industrial Work"; D. R. Bahnfleth, University of Illinois, "Summer Cooling in Research Residence No. 3 Using a Perimeter Loop System"; and H. T. Gilkey, University of Illinois, "Summer Cooling in Research Residence No. 2".

BACO ADDS 60% TO PRODUCTION SPACE

Baltimore Aircoil Co., Inc., has contracted for a new building adjacent to its present plant.

This new addition, consisting of a one story building of brick and steel, will increase their manufacturing capacity about 60%.

INDUSTRY LEADERS PLAN 1954-55 CONFERENCES

PLEDGING COOPERATION on industry educational conferences, representatives of several trade organizations met with the educational conference committee of the Air-Conditioning and Refrigeration Institute in Cleveland, Ohio. Attending the meeting were, left to right, standing; G. E. Graff, Ranco, Inc.; George W. Howe, president, RACCA; E. W. Farr, RACCA; A. Starr Hull, executive secretary, REWA; K. B. Thorndike, Detroit Controls Corp.; Paul Reed, RSES. Seated from left to right were: Fred Weldon, General Controls Co.; W. D. Bayless, NCRSA; H. T. McDermott, international secretary, RSES; George F. Mills, ARI; E. M. Flannery, Bush Mfg. Co., chairman; and Ray Kromer, executive vice president, RACCA.

* * *

THREE EDUCATIONAL CONFERENCES SET

Representatives of Refrigeration Service Engineers Society, Refrigeration Equipment Wholesalers Association, Refrigeration and Air Conditioning Contractors Association, and National Commercial Refrigerator Sales Association met recently in Cleveland, Ohio, with the educational conference committee of Air-Conditioning and Refrigeration Institute to discuss methods of improving the scope and attendance of three Educational Conferences planned for 1954 and 1955.

Among the changes adopted by this group were: changing the former long name given to the conferences to "ARI Educational Conference"; changing the dates of future conferences to Thursday, Friday and Saturday instead of Friday, Saturday and Sunday; and extending an invitation to RACCA, REWA, and NCRSA to plan and carry out independent speaking programs or regional meetings to run concurrently with those of RSES in conjunction with educational exhibits.

The hours involved in the conferences were also altered for both the speaking and exhibit programs.

The following cities were tentatively agreed upon for the series of three educational conferences: March or April, 1954, San Francisco, Oakland, Los Angeles or Long Beach, Calif.; Fall of 1954, (suggested by ARI) New York City, Newark, N. J., or Baltimore, Md., (suggested by RSES) Wichita, Kan.; Spring of 1955, Atlanta, Ga., or New Orleans, La.

The committee will try to secure for these conferences additional exhibits which would demonstrate the operation of typical summer-winter air conditioning installations for cooling and heating through ducts and also through pipes, reverse cycle or heat pump systems, and automobile air conditioning units.

ANSUL OPENS NEW OFFICE, WAREHOUSE

Ansul Chemical Co., Marinette, Wisc., opened a new office and warehouse at Kansas City, Missouri, with more than 300 customers and suppliers in attendance at a housewarming.

The new building is headquarters for the sale of the company's dry chemical fire equipment, refrigeration products and industrial chemicals in the southwest. Territory to be serviced includes Missouri, Kansas, Nebraska, southern Illinois, Arkansas, Oklahoma and the Texas panhandle.

Supervising the operations of the new 10,000 sq. ft. building are C. H. Armstrong, regional fire equipment manager, and Roy McCrady, refrigeration district manager.

REMINGTON SALES OVER 100% HIGHER

Sales of window and console type Remington room air conditioners for the 10 months ended Sept. 1 were more than 100% above sales for the entire previous fiscal year, reports by M. L. Judd, general sales manager of Remington Corp.

Judd said that sales of Remington window and console room units have jumped from 11,099 units (8,198 window, 2,901 console) in the 12 month fiscal period ended Oct. 31, 1952 to 25,225 units (19,716 window, 5,509 console) in the 10 months from Nov. 1, 1952 to Sept. 1, 1953. Plans for 1954 call for the sale of over 50,000 units.

For the 10 months since last Nov. 1, Remington produced almost one-half of all room consoles made by the industry in that period, Judd said.

WAMPLER STAYS ON FACT FINDING BODY

Cloud Wampler, president of Carrier Corp., has been re-elected a board member of the National Industrial Conference Board for a term of one year.

ASRE MEETS DEC. 6 IN WASHINGTON, D.C.

The largest crowd ever to attend a winter meeting of the American Society of Refrigerating Engineers is expected at the ASRE 49th Annual Convention to be held Dec. 6-9 at the Shoreham Hotel, Washington, D. C.

For the first time in ASRE history there will be eight sessions, consisting of four regular technical sessions and four informal conferences or symposiums. The technical sessions will provide a wide variety of papers.

The informal sessions will consist of a domestic refrigerator engineering conference which will discuss recent developments in plastics for refrigerators and home freezers; an air conditioner conference on packaged air conditioners for commercial and industrial applications; a symposium on heat pumps, presided over by Prof. C. H. Coogan, University of Connecticut, which will be a general discussion of progress and present status of this type equipment; and a water conservation symposium, with Edward Simons, past president of ASRE, presiding, which will deal with this subject from the standpoint of four different types of water conservation equipment.

The local convention committee, H. W. Hottel, chairman, has arranged a varied program of activities.

BARBER-COLMAN CO. OPENS TWO OFFICES

Automatic Control and Uni-Flo divisions of Barber-Colman Co. have opened two new factory branch offices, one in Indianapolis, Ind., and the other in Omaha, Neb.

USAIRCO HAS 58% SALES INCREASE

An increase of 58% over last year's quarterly total sales for United States Air Conditioning Corp. has been announced by Wesley J. Peoples, president of the firm. The corporation's sales for the quarter ended July 31, 1953 totalled $3,131,000 compared with $1,978,000 in last year's corresponding period.

AIRTEMP REVAMPS DISTRIBUTION PLAN

The Airtemp Div. of Chrysler Corp. has announced that Airtemp has adopted a new distribution pattern for its many air conditioning and heating products.

Describing the new program, J. F. Knoff, Airtemp vice-president and general sales manager, stated, "The air conditioning and heating markets have become so large and diversified that Airtemp has found it necessary to revise its existing distribution patterns. The new arrangement will give us a deeper penetration into the four separate heating and 'packaged' air conditioning markets".

Formerly, Airtemp has dealt directly with individual dealers classified according to the type of Airtemp products sold. Under the new arrangement, wholesale distributors of Airtemp products will be strategically located in every important air conditioning market area. Each distributor will service a number of Chrysler Airtemp dealer accounts in his particular area.

Knoff stated that the new distribution system will include all phases of air conditioning and heating products merchandising, field engineering and factory service. No plans have been made to change the distribution of the large central station type equipment.

NEW INDUSTRY GROUP FORMED

Organization of a new manufacturers' association, —the Institute of Environmental Equipment Manufacturers,—has just been announced by Dr. George D. Wilkinson, general manager. Institute headquarters will be at 30 Church St., New York, N. Y.

One of the Institute's most important functions will be to supply industry with technical data on environmental testing. Along this line, a library will be maintained, standards will be prepared in cooperation with the National Bureau of Standards, and technical bulletins will be disseminated both to industry and to educational and research organizations.

The Institute also will guide the Industry in providing maximum service to equipment users by: (1) maintaining and improving quality and service standards in production and marketing; (2) standardizing and simplifying designs; and (3) adopting trade practices and methods designed to preserve and promote fair and ethical competition.

Company members include: Alpha Electric Refrigerator Co., Detroit, Mich., American Research Inc., Bristol, Conn., Bemco Inc., Los Angeles, Calif., Harris Refrigeration Co., Cambridge, Mass., International Radiant Company, Port Washington, L. I., N. Y., Standard Cabinet Company, Rutherford, N.J., Sub-Zero Products, Cincinnati, Ohio, Tenney Engineering, Inc., Newark, N.J., Webber Manufacturing Co., Indianapolis, Ind.

HARRISON ELECTED CRMA PRESIDENT

Reese L. Harrison, executive vice president of Friedrich Refrigerators, Inc., was elected president of the Commercial Refrigerator Manufacturers Association at the group's recent annual meeting in Chicago.

Edwin B. Ahrens, of C. Schmidt Co. was elected vice president and William T. McCall of McCall Refrigeration Corp. was elected treasurer.

Henry M. Hasse, McCray Refrigerator Co., and Chester K. Litman, Koch Refrigerators, Inc., were chosen as directors.

BARKOW NAMES EXPORT AGENCY

Dummann World Trade Co. of Milwaukee has been appointed the International Div. for Aug. G. Barkow Mfg. Co., Inc. In cooperation with its associated company, Wolff International, Inc., Dummann will promote sales to all world markets of Barkow freezers and air conditioning units.

REMINGTON
specializes in
ROOM AIR CONDITIONING!

You can't expect a garageman to shoe a horse, so why expect the specialists in other fields to turn out the best in room air conditioners?

Remington is the only major manufacturer specializing in Room Air Conditioning. Every day throughout the year every person in every Remington department is concerned solely with making and helping you sell the world's finest line of Room Air Conditioners.

And it's the most complete line—a model and type for every room—at a price for every purse.

These units have been tropic-tested and proved. They give you exclusive selling features no other air conditioner can offer. Remington-made units are one of only two manufacturers' units accepted in the Empire State Building—one of few accepted in many other famous buildings.

And Remington backs your selling efforts with a unique sales-promotion plan—keyed exactly to your particular market.

Send for details on the "Profits Guaranteed" Remington franchise today so that you can take advantage of Remington's sensational FREE pre-season promotion plan.

HEALTH and COMFORT *by the roomful*

Remington AIR CONDITIONING

DIVISION OF REMINGTON CORPORATION
13-3 Willey Street, Auburn, N. Y., U. S. A.

Circle No. 27 on Reader Service Card

MILLION ROOM UNIT SALES FORECAST

Room air conditioner unit sales this year will approach the one million mark, in the opinion of W. F. Carolan, chairman of the room air-conditioner section of the Air-Conditioning and Refrigeration Institute (ARI).

One million unit sales, he pointed out, far exceeds pre-season estimates which ranged from 400,000 to 700,000.

The one million sales figure was determined by an informal survey conducted among members of the section attending a recent meeting at White Sulphur Springs, W. Va. Most leading manufacturers were represented.

"All the industry's sales figures at this time are approximations. Exact figures, will not be available until the newly organized section has collected and compiled additional data," Carolan said.

Carolan, who is general sales manager of RCA room air conditioners, RCA Victor Div., Radio Corp. of America, said that the compilation of statistics of room air conditioner sales at the manufacturer, distributor and dealer levels was one of the major purposes of the section.

Other purposes are to establish engineering and installation standards; to discourage all false and misleading advertising; and to establish and maintain liaison between the room air conditioner industry and other related industries.

G-E ROOM COOLER PRODUCTION MOVED

The 1954 General Electric line of room air conditioners will be produced at the Erie, Pa., works of the company, according to Harold B. Donley, general manager of the specialty refrigeration products department.

Transfer of manufacture of the room air conditioners to Erie from the Bloomfield, N. J., air conditioning works of the company, will enable increased production of the units, Donley says. Room air conditioners eventually will be manufactured at the major appliance division's new Appliance Park now under construction at Louisville, Ky.

EMERSON RADIO BUYS QUIET-HEET STOCK

Emerson Radio and Phonograph Corp. has acquired a majority interest in Quiet-Heet Mfg. Corp., manufacturers of air conditioners and oil burners, according to Benjamin Abrams, Emerson's president.

The Quiet-Heet company, which was organized in 1936, entered the room air-conditioning field five years ago. It will be operated as an Emerson subsidiary and will continue under existing management.

In addition to producing its own line of room and house air-conditioners, Quiet-Heet will produce room and house air-conditioners which will be marketed under the Emerson name, Abrams said.

The plant and general offices of the new Emerson subsidiary are located in Newark, N.J., where it occupies five buildings, the largest of which consists of 108,000 sq. ft.

Abrams stated that Emerson will shortly make an announcement about the merchandising plans of its air-conditioning units and expects to show its line to the trade in the early part of December.

Officers of the new Emerson subsidiary are Samuel L. Peters, president; Eugene M. Peters, vice president; Morton P. Rome, secretary; Joseph Longin, treasurer; Bruno Sachs, assistant secretary and works manager.

NEW BONNEY REPS

Phillip A. Gahm and his son Phillip, Jr., have been appointed sales representatives for Bonney Forge & Tool Works, covering the New England territory.

The Gahms succeed Wallace G. Smith, Jr.

BIG BUYS
IN SMALL PRECISION
FLOAT CONTROL VALVES

For controlling water in humidifying units, pan fillers, air conditioning equipment, evaporative coolers, and air washers. No. 51 and 52 Valves accurately maintain water lines as low as 1" deep. Float adjustable. See your jobber or write us.

No. 51

Only 5⅝" long overall. Non-corrosive metals throughout. Easy to install by drilling one hole. Capacity ½ gal. per minute at 50 lbs. pressure.

No. 52

8" long overall. Same features as No. 51 Valve, except larger capacity—1 gal. per minute at 50 lbs. pressure.

QUICK HOOK-UP SADDLE VALVE

Fits ½" and ¾" pipe. To install, just drill ¼" hole in pipe. Outlet provided for ¼" O.D. copper tubing.

HANDY NEEDLE VALVE

Ideal to control water supply to humidifiers and water valves. ⅛" I.P. male end and ¼" O.D. copper tube size outlet.

See your jobber or write

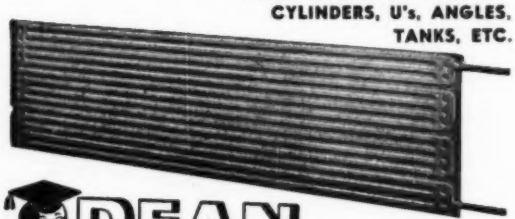
MAID-O'-MIST, Inc.
3217 NORTH PULASKI ROAD, CHICAGO 41, ILLINOIS

Circle No. 29 on Reader Service Card

the Dean Says—

NOW . . . BUY YOUR PLATES IN THE SIZES YOU NEED!

ZINC METALLIZED STEEL, STAINLESS STEEL AND OTHER METALS. CYLINDERS, U's, ANGLES, TANKS, ETC.



DEAN

"JOB TAILORED" EVAPORATOR PLATES

DEAN COLD PLATES for
FROSTED FOOD DISPLAY CABINETS
ICE CREAM CABINETS
SODA FOUNTAINS
FARM MILK COOLERS
FARM FREEZERS
LIQUID COOLERS
WINDOW DISPLAYS
FOOD COUNTERS
LOW TEMPERATURE TEST ROOMS
REFRIGERATED TRANSPORTATION
Plates also available for Baudelot-type Coolers

Now you can get your plates exactly as you want them . . . any size . . . any shape . . . any metal! Think what this means in time saved . . . MONEY SAVED! Before you buy another plate, get the facts on DEAN "Job tailored" cold plates. It will be well worth your while! Ask your jobber, or write

DEAN PRODUCTS, INC.
1042 Dean St., Brooklyn 38, N.Y.
STerling 9-5400
Write for Technical Data Book

Circle No. 28 on Reader Service Card

COMMERCIAL *Refrigerator* SALES NEWS

Prove Air Conditioning Pays and Food Stores Will Buy, Says Herman

HOW should the commercial refrigeration dealer go about selling his food store customers on the benefit of air conditioning? Simply by telling them that the installation of air conditioning equipment will increase their business volume, says Neil Herman, vice president of Allied Store Equipment Co., a Minneapolis, Minn., distributor of refrigeration and air conditioning.

But that's only half the battle, he cautions. Next the dealer has to be able to cite facts and figures to prove this contention to the food market operator. Herman proceeded to offer several rounds of sales ammunition for dealers to use in their efforts to merchandise air conditioning equipment to food store owners.

He cited figures released by Methods Management Magazines, Inc., which analyzed 17 different kinds of businesses and found that the average annual increase in volume after air conditioning in super markets was 30.9%. This was topped only by restaurants with 36.6% and beauty shops with 33.3%. Other percentage gains ranged from 6.6% for retail jewelers to 29% for theaters.

Herman also reported an interesting example of what air conditioning can do for a food store from a recent article in Super Market Merchandising. Shopwell Foods, Inc., White Plains, N. Y., showed a sales volume in July, August and September 1947 of $176,832, before air conditioning was installed. In the same period the next year, after air conditioning, sales were $260,643, an increase of 47.3%.

The same comparison was made for October, November and December periods and the increase was 21.3%. In January, February and March of 1949, another comparison was made and sales were 24.2% greater than they were in the same period in 1948.

Louis H. Taxin, president of Shopwell Foods, attributes the increase in business during the months beginning October 1948 to the fact that they gained many new customers during the hot days when they enjoyed the comfort of the store.

Once Shopwell attracted these customers with air conditioning, they were able to make steady shoppers out of them. Sales gain for the same period in other Shopwell stores which had no air conditioning amounted to only about 12%.

So completely did this convince Shopwell executives of the merits of food store air conditioning that they promptly proceeded to order additional packaged units for all of their other markets.

NEW NCRSA MEMBERS

Central Store Equipment, commercial refrigeration dealership in Orlando, Fla., has joined the membership ranks of National Commercial Refrigerator Sales Association.

Warren Co., Inc., Atlanta, Ga., manufacturer of commercial refrigerators, has become an associate member of the organization.

MARKET CONTAINS 540 FT. OF REFRIGERATED CASES

Over 540 feet of refrigerated cases, requiring 22 motors developing 76 hp to keep them operating are installed in the Cut Price supermarket in St. Paul, Minn.

Establishing some sort of record for refrigerated footage, this 30,000 sq.ft. store contains 154 feet of refrigerated space in the meat depart-

CONDITIONING CLEANS AIR IN COCKTAIL LOUNGE

PURE AIR for the luxurious new bar and cocktail lounge in the Atlanta Athletic Club is assured by two "Pur Air" air purification units installed by the Crawley-Gorbandt Co., Atlanta representative for the Pur Air Div. of Barnebey-Cheney Co., Columbus, Ohio. The cushy carpeting and chairs formerly absorbed and held beverage and cigarette odors, despite a special air conditioning system, and the air became stale and smelly. The lounge and bar contain about 20,000 cu. ft. of space. By changing the air in the rooms every 10 minutes, the objectionable odors have been eliminated.

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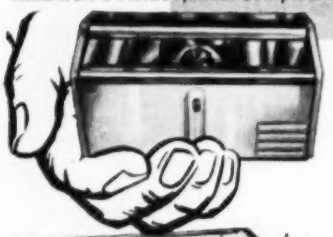
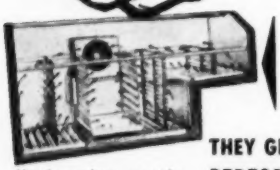
INCREASE BEVCO SALES with COOLERS

AMERICA'S FINEST, most Complete Line





The BEVCO BLOWER COIL

THEY GIVE YOU PERFORMANCE PLUS YEAR AFTER YEAR!

Here's modern, speedy, dry cooling at its best, for all beverages provided by the BEVCO field-tested Blower Coil refrigeration system that's trouble-free and dependable. The 5-year warranty guarantees perfect service. Water equipment, dividers, casters, stainless interiors, exteriors, available in all models.

SEND FOR CATALOG A-1

The BEVCO Company, Inc.

3316-28 S. BROADWAY • ST. LOUIS 18, MO.

Buy Peerless FOR PERFORMANCE

DRIP-PUMP for Condensate on Air Conditioners

The Peerless Drip-Pump solves the troublesome drainage problem—on air conditioners, coolers, refrigerators and other machines where condensate is present—by eliminating hazardous gravity drains altogether! The Drip-Pump lifts condensate *up and out, overhead* . . . saves valuable space.

Illustration shows Model DP-2 high capacity high lift pump for air conditioner applications. Also available is Model DP-1 packless centrifugal type pump, driven by "flea-power" motor . . . the ideal pump for use for dome, unit or flash coolers. Both models are ruggedly built for long, hard service; easily and quickly installed. Write for full information.

Peerless of America, Inc.

1501 No. Magnolia, Avenue

Chicago 22, Illinois, U.S.A.

Circle No. 31 on Reader Service Card

ment alone. Directly across the aisle from the meat department are a series of refrigerated and unrefrigerated ends for meat promotion and dairy specials.

As presented in a recent issue of Chain Store Age, this supermarket also contains another 70 feet of refrigerated cases which make up the major part of the store's side-wall produce department. These rear-loaded cases are supplemented by aisle table bins.

Centrally located, running from front to rear of the store, a 134 foot lineup of frozen food cases holds all top brands of frozen foods in a wide variety.

This section illustrates the growth in demand for frozen foods when contrasted with the first frozen foods department Cut Price installed six years ago which contained one 7 foot case.

On the wall opposite the produce department are located the double-deck refrigerated cases for dairy products. In a red and white striped deep freeze counter are 3,000 packages of ice cream and a cheese case containing 250 varieties of cheese is located across the aisle.

NASH CITES ADVANTAGES OF COOLING FOR STORE

E. A. Nash, Chrysler Airtemp merchandising manager, was a featured speaker at the three-day Store Modernization Clinic sponsored by Western Massachusetts Electric Co. Also participating in the clinic is the New England Power Company.

Every retail merchant of the New England area served by the two power companies was invited to attend. Topics included modernization of store fronts, air conditioning, window lighting, color and decoration, store traffic layout and design and general store lighting.

In his presentation, Nash cited the advantages of air conditioning to the retail merchant as evidenced in increased sales volume and employee efficiency, greater merchandise turnover and additional profit for the operator.

BUY FROM YOUR REFRIGERATION WHOLESALER

McCRAY NAMES 4 DISTRIBUTORS

McCray Refrigerator Co., Inc., has announced the establishment of four new distributorships to handle their line of commercial refrigeration and "Twin Door" home freezers.

Kiesel's Co., Salina, Kan., headed by Ken Kiesel, will distribute McCray products through sixteen Kansas counties. A. J. Ashley, Lafayette, La., will have exclusive selling privileges in eight Louisiana parishes. Andrews Refrigeration Service, Pineville, La., will operate in eight Louisiana parishes around Pineville. Modern Refrigeration Service, Billings, Mont., will operate in 23 Montana and 10 Wyoming counties.

"My dad gave it to me for Christmas—now I can have all the building blocks I want!"

NEW BALLY OUTLETS

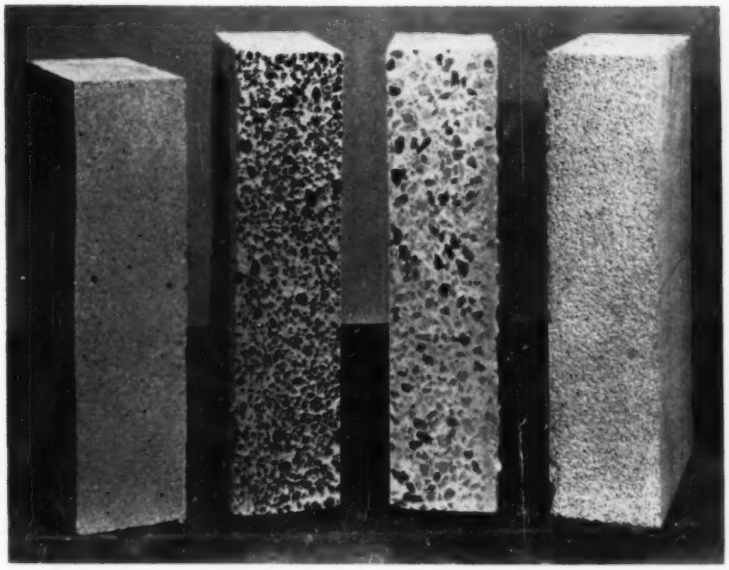
J. P. Stewart Co., Inc., Cleveland, and Grant Adams A-1 Refrigeration Co., San Jose, Calif. have been appointed distributors for the Bally Case and Cooler Co. of Bally, Pa.

The Stewart firm will serve the Cleveland metropolitan area, and the Grant Adams concern will cover seven central California counties. Leon Prince, Bally sales manager, stated that both organizations will distribute Bally's entire line of refrigerated cases and coolers.

NEW NELSON BRANCH

N. O. Nelson Co. has opened a new branch store in Mount Vernon, Ill. Refrigeration, plumbing, heating and industrial wholesale supplies and equipment are carried at this branch. Wm. Lance is in charge of the refrigeration counter.

Cellular Concrete Offers Many Insulating Possibilities



NEW CELLULAR CONCRETE is claimed to have application as insulating material for cold storage rooms,, as well as for a variety of other building uses. A European development, the material will be produced in this country under the trade-name of "Calsi-crete". Densities of the material as shown above (left to right) include 40 lb., 50 lb., 44 lb., and 20 lb. per cubic foot.

* * *

A versatile cellular concrete which can be nailed, sawed and cut like wood, yet has insulating, load bearing, acoustical and water resisting qualities for walls, roofs, partitions and firedoor cores is being introduced in the United States. A European development, the material will be manufactured in this country under the trade-name of "Calsi-crete". Patents on the process are held by the Calsi-crete Corp., recently formed by officials of Jackson & Church Co., Saginaw, Mich. Experience has proved that this material, when in place, costs less than conventional concrete despite its having 8 to 16 times the insulation value and weighing only one-seventh to one-fourth as much, depending on the density required. Three types of the lightweight material will be manufactured, each varying in strength and other characteristics, depending on the particular application. Franchises will be issued to firms throughout the nation for manufacture of the structural type materials. Calsi-crete with a bulk density of 40 to 55 lbs. per cu. ft. provides the best structural qualities. It can be used for nearly all building needs. This compares with regular concrete weighing approximately 150 lbs. per cu. ft. Material of this density is used for both inside load bearing walls and facings, exposed or covered roof planks and similar applications where strength is essential.

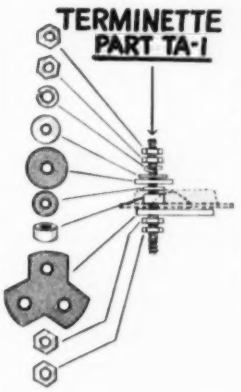
Products with a bulk density of 30 to 40 lbs. per cu. ft. have average load bearing qualities for partitions, roof slabs and related uses. Material with 15 to 30 lbs. per cu. ft. provides little structural quality, but is ideal for firedoor cores, wall panels, ceilings, pipe coverings, cold storage and refrigerated rooms because of its insulation and acoustical features.

Calsi-crete Corp. officers said the material provides eight times better insulation than concrete and is suitable for both hot or cold climates. An acetylene torch with a 2000-F flame was directed against one spot on a 3" thick block for a half hour without noticeable heat transfer to the rear side, they said.

NOW YOU CAN REPAIR THESE TERMINALS

WATSCO TERMINETTES, a hermetic terminal replacement kit, solves the troublesome problem of repairing leaky or cracked terminals of the fused glass type.

A simple procedure, requiring no special tools or equipment, makes it easy to install the Terminette replacements. In practically no time at all the sealed unit is ready for assembly with new Terminette posts that eliminate leakage, assuring a long trouble-free life.



Your refrigeration wholesaler can furnish you with Terminettes; order from him now and be ready for that next job.

Available at Your Jobber WATSCO

Wagner Tool & Supply Corp.,

REFRIGERATION PARTS AND TOOLS

40-08 22nd ST., L. I. City, N. Y.

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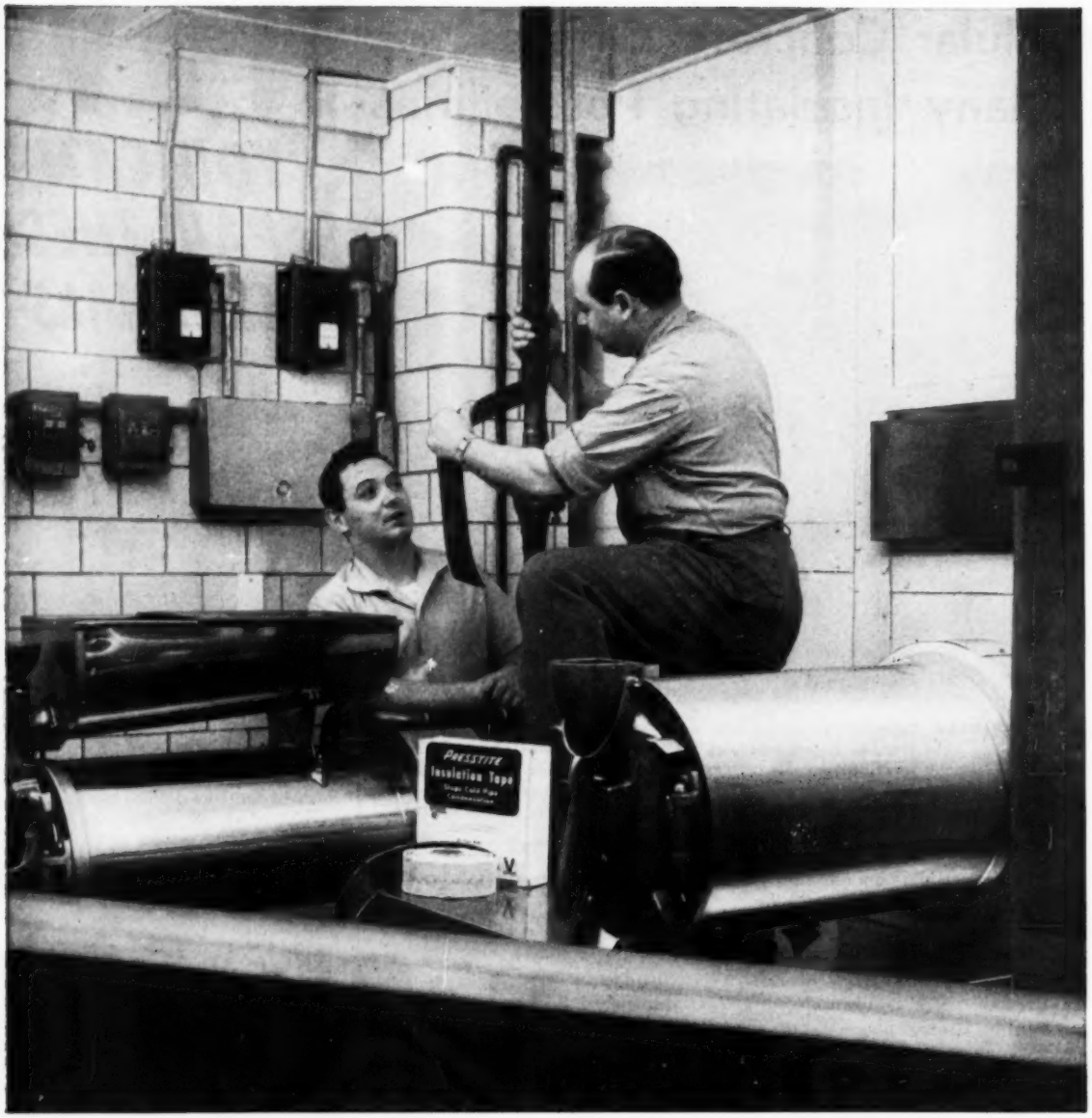

"You mean that stops the dripping?"

Nothing can be more annoying than constantly dripping suction lines, cold water pipes, valves and fittings. Nothing can solve that problem quicker than Presstite Insulation Tape. It stops the drip, once and for all.

Presstite Tape contains 40 percent virgin cork. It adheres to any dry surface and is so easy to apply. You can build the wrappings up to any thickness you want, and the joints will be self-sealing. No cements or other wrappings are ever needed. Presstite Tape does *not* harden or become brittle. The convenient easy-to-use package contains a roll of tape 2" wide x ⅛" thick and 30 feet long.

Get Presstite Insulation Tape from your favorite wholesaler. Or write **VIRGINIA SMELTING CO., Dept. 64, West Norfolk, Va.**

VIRGINIA Refrigerants

ESOTOO • KINETIC CHEMICAL'S "FREON" REFRIGERANTS
V-METH-L • CAN-O-GAS • PERMAGUM • PRESSTITE TAPE
SOLVEX PRODUCTS • SUNISO REFRIGERATION OILS

Circle No. 33 on Reader Service Card

THE COMMERCIAL REFRIGERATION and AIR CONDITIONING APPLICATIONS MANUAL

by Hugo C. Smith

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. All problems should be clearly and completely stated and addressed to: COMMERCIAL REFRIGERATION AND AIR CONDITIONING, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

A Simple 3-Step Method of Selecting Coil and Condensing Unit Equipment

SELECTION of the proper size of forced air coil and condensing unit for any refrigerated room should be made on the basis of the calculated or established heat load. (For simplified methods of determining the heat load for normal temperature and low temperature rooms, see the Applications Manual section of the August and October, 1953, issues of COMMERCIAL REFRIGERATION & AIR CONDITIONING.)

The next step is to establish the temperature difference (t. d.) to be used in selecting the proper coil and condensing unit. This factor of temperature difference is the actual difference between temperature in the refrigerated room and evaporator temperature.

The recommended temperature difference tables published by ASRE show that 90% of all refrigerated foods require from 10 to 12 degrees t. d. for best operation. Under normal load conditions this t. d. will maintain 80 to 85% relative humidity in the cooler. If a greater t. d. is maintained, a lower humidity will result, and foods will lose their natural moisture and fresh appearance more quickly.

Design for Varied Use

By far the greatest majority of coolers are subject to multiple-purpose use, involving the storage of different types of food products. It is our opinion, therefore, that all coils should be selected within the limits of 10 to 12 degrees t. d. On those rare occasions when lower humidities are required, simply closing off the expansion valve will increase the superheat and use less of the coil surface. This action increases the t. d. at which the evaporator is operating and lowers the humidity.

Selection of equipment for freezer rooms is handled in much the same manner. To prevent excessive dehydration, and because low temperature condensing unit capacities fall off sharply as the suction temperature is lowered, low sides for these applications are generally selected on the basis of a 10-degree temperature differential between the refrigerated room and the evaporator temperature.

Use Multiple Systems

As outlined in previous Applications Manual articles by this author, there is much merit in equipping all coolers up to a set standard of maximum capacity and performance. By specifying equipment to handle the maximum possible load conditions on each cooler, the contractor can be sure that the installation will continue to perform satisfactorily, regardless of how often or how much the operator might change his usage of the cooler.

Many small contractors today are reluctant to bid on jobs of 5 hp and up because they feel they are not equipped to handle floor-mounted coils, duct work, and similar equipment. They fail to realize that it is possible to do an excellent job on large cold storage coolers with standard ceiling-mounted unit coolers and relatively small compressors, providing these units are used in multiples.

For instance, we have used up to three condensing units on one room, each connected to its own coil. Each of these systems operates completely independently of the other, but all are controlled by simple pressure controls

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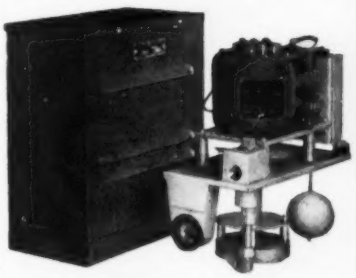
Pumps and Condensate Disposal Units

A large selection of heavy duty pumps for continuous duty under severe operating conditions.

Eastern condensate units are available for normal or high temperature operation. Completely automatic and foolproof.



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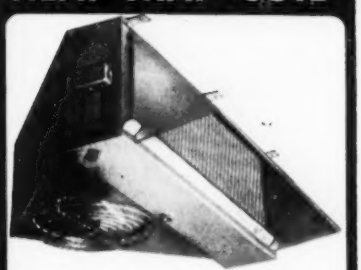
Eastern INDUSTRIES, INC.

296 Elm St., New Haven, Conn.

"DEFROSTAIR" HEAT TRAP COIL



Automatically Defrosts Itself

Rising warm air is confined under hood of refrigeration coil housing within fin and tube area. Coil defrosts completely without warm air escaping into refrigerated zone. No re-evaporation. No special plumbing. Easy to install. Low cost. Field tested since 1944. All patents granted. Defrostair coil is designed for all low temperature applications and fresh meat rooms below 34° F.

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WITT Coils Over 30 years reliable service

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Simplified Equipment Selection

Here are typical examples of how quickly and simply the proper coil and condensing unit can be selected, both for applications where only a single condensing unit is employed and for those installations involving the use of "duplex" or multiple systems.

EXAMPLE 1

PROBLEM: How to select equipment for a general purpose meat cooler using a single condensing unit. Here are the elements of this installation:
Load: 11000 Btu/hr
Cooler temperature: 34°
Temperature difference: 12°
Evaporator temperature: 22°
Suction temperature at which compressor is selected (allow 2 lbs. pressure drop): 20° (22° –2°)

STEP 1: Divide the load in Btu/hr by temperature difference. 11000 ÷ 12 = 917 (basic rating required for evaporator).

STEP 2: Evaporator Selection
One unit cooler with a basic rating of at least 917.

STEP 3: Condensing Unit Selection
One 1-hp compressor of 11000 Btu/hr at 20° suction temperature. Approximate pressure control setting, 36 lbs. cut-in, 18 lbs. cut-out.

EXAMPLE 2

PROBLEM: How to select equipment for a general purpose meat cooler using a duplex system. Here are the elements of this installation:
Load: 38000 Btu/hr
Cooler temperature: 34°
Temperature difference: 12°
Evaporator temperature: 22°
Suction temperature at which compressor is selected (allow 2 lbs. pressure drop): 20° (22° –2°)

STEP 1: Divide the load in Btu/hr by temperature difference. 38000 ÷ 12 = 3167 (basic rating required for evaporator).

STEP 2: Evaporator Selection
Two unit coolers of at least 1584 basic rating each.

STEP 3: Condensing Unit Selection
Two 2-hp units of 19000 Btu/hr each at 20° suction temperature.

Install job as two separate systems independent of one another. Control both with pressure controls set at exactly the same trial setting of 35 lbs. cut-in and 20 lbs. cut-out.

set to the same cut-in and cut-out point.

A full explanation of this multiple type of installation was presented in the September, 1953, issue of COMMERCIAL REFRIGERATION & AIR CONDITIONING under the heading "Two Systems Are Better Than One".

We know of no limitations on the number of such "balanced systems" that may be successfully utilized on one room. The main advantages of these multiple installations are extremely close temperature control, protection for the customer against complete breakdown of the installation, comparatively lower cost than many large single compressor jobs, ready availability of the standard production units which comprise these systems, and simplicity of design and operation.

In the adjoining columns, we are presenting step-by-step examples of this simplified method of selecting the proper coil and condensing unit equipment for any walk-in cooler installation, whether of the single-unit or multiple-system type.

SERVEL INCREASES STRESS ON PACKAGE UNITS

The sales potential of packaged units in the air conditioning industry has dictated a major readjustment in the development divisions of Servel, Inc. to meet the demands of the nation's newest mass market, according to H. R. Nielsen, sales manager of the company's air conditioning division.

"This sales potential is making itself felt more strongly with each passing week," Nielsen says. "Developments in the air conditioning industry indicate a tremendous boom for small tonnage package units in both the residential and commercial fields."

NOR-LAKE NAMES REGAN MINNEAPOLIS OUTLET

Exclusive distribution rights for Nor-Lake refrigeration and bar equipment in North and South Dakota, Minnesota and Montana have been granted T. P. Regan Sales Promotion Agency, St. Paul, Minn., according to Nor-Lake, Inc.

T. P. Regan, sales manager of the St. Paul firm, said the company will merchandise the Nor-Lake line in conjunction with other products.

PIPING SIMPLIFIED . . .

Continued from page 34

In the case of high lifts, the operating head pressure must be increased. The higher the liquid lift, the higher the condensing head pressure required and the greater the necessity for subcooling.

The last line to be considered is the suction line. Again, the refrigerant is in a vapor state; however, the vapor is relatively cold. As in hot gas lines, the vapor should move at a velocity not less than 750 feet per minute in the horizontal lines and not less than 1500 feet per minute in the vertical risers.

Because of the undesirable effect of pressure drop on system operation and performance, recommended practice calls for a maximum pressure drop of 1 psi at maximum load in the suction line. Occasionally, in order to assure carry-over of oil, the major part of this allowable pressure drop occurs in the vertical riser. If this is the case, the horizontal part of the suction line should be increased in size until the total pressure drop is within the allowable limits. Never, however, allow the suction vapor to move at a velocity below 750 feet per minute in a horizontal line even though a pressure drop greater than 1 psi may result in that line. It is more important to assure the suction line pressure drop below 1 psi.

Check These Three Points

1. Sufficient room should be provided for the proper location of the thermostatic expansion valve remote bulb on the suction line immediately following the evaporator. This is necessary to assure proper valve functioning.
2. Evaporators should be piped so that any unevaporated refrigerant will drain freely when the pump-down cycle is not used. This, again, promotes better functioning of the TX valve.
3. It is recommended all refrigeration systems be set up with a pump-down cycle. However, there are some that will not have this feature. The differences in the piping arrangement between pump-down and no pump-down will be considered.

When the pump-down cycle is used and the evaporators are located above the compressor, as shown in Figure 6, each evaporator should be free draining. In addition, the evaporators should not be able to drain into each other. The piping connection shown for the lower evaporator is recommended to prevent erratic operation of the thermostatic expansion valve.

When the pump-down cycle is not used, each evaporator should be connected to the common suction line at an elevation slightly above the top of each evaporator. This prevents liquid refrigerant in either evaporator from draining into the compressor upon system shutdown. Each evaporator should be provided with a trap to assure proper functioning of the thermostatic expansion valve. Capacity control presents no piping problem when the evaporators are located above the compressor.

Double Risers Needed

When the evaporators are located below the compressor, see Figure 7, or when it is necessary to run the suction line overhead above the evaporators, the same general piping arrangement as just described is used. The only difference occurs in the line leaving the last evaporator. Instead of continuing downward, it is re-directed upward to connect to the horizontal suction line. This arrangement is satisfactory for operation either with or without pump-down.

If capacity control is employed, the double riser system again becomes a necessity. The smaller riser is sized for 1500 feet per minute minimum velocity at minimum load. The larger riser is sized for a minimum suction gas velocity of 1500 feet per minute through both risers at maximum load. The additions are the extra riser and the oil trap located at the point of maximum effectiveness. The oil trap's function is the same as in hot gas double riser systems. No difference exists if the system is to be pumped down. It is important to check the smaller riser for proper size when only one evaporator is functioning.

Occasionally, it becomes necessary to connect two or more evaporators, each controlled by an individual solenoid valve, to a common suction line. When this must be done, the piping connecting the evaporators and the common suction line should be arranged to prevent liquid refrigerant and oil from collecting in the evaporators not in use. In this arrangement, shown in Figure 8, each evaporator is provided with an oil trap in the suction outlet immediately following the evaporator. Sufficient room should be allowed for the thermstatic expansion valve remote bulb.

Use Inverted Traps

Evaporators located above the common suction line are provided with inverted traps. The top of these inverted traps should not be lower than the top of the evaporator. The last evaporator is connected directly into the end of the line. However, another evaporator should not be connected into the main suction line immediately following the end connection. If this were done, the liquid refrigerant could flow down into the lower end evaporator. Subsequent evaporators located below the main suction line should be arranged for inverted or top entry. The common suction line should be pitched toward the compressor the maximum amount the fittings will permit — ½" in 10 feet.

Traps Are Eliminated

When pump-down is employed, the inverted trap and short trap for all evaporators located above the common suction line are eliminated, as shown in Figure 9. Those evaporators located below the common suction line are connected as they were for no pump-down. The traps immediately following these evaporators are retained to assure proper functioning of the thermostatic expansion valves under all conditions of operation.

The connection to the compressor should be direct, as shown in Figure 10. Never install an oil trap near the compressor. It is far better to allow a little oil to drain into the compressor suction chamber than to trap a lot of oil in the suction line just ahead of the compressor. The larger the quantity of oil, the greater the possibility for slugging, leading to compressor failure.

Hearty Thanks and Season's Greetings
You helped make 1953 a big year in Ranco's history, and we are grateful. Your friendship and loyalty make possible the continued leadership of Ranco controls. We expect to maintain your friendship by quality and engineering leadership.

Our thanks to you . . . and best wishes for a very Happy Holiday and a prosperous New Year!

Ranco Inc.

COLUMBUS 1, OHIO

RANCO CONTROLS

WORLD'S LARGEST MANUFACTURER OF REFRIGERATION CONTROLS

Circle No. 36 on Reader Service Card

HERE'S HOW!

New "P-M" Program Presented By Kinetic

A new preventive maintenance program has been presented to refrigeration wholesalers and servicemen by Du Pont Co.'s "Kinetic" Chemicals Div.

Designed to help servicemen level out seasonal slumps in equipment maintenance by selling equipment owners on the economic advantages of winter check-ups, the "PM" program includes individual promotion kits for wholesale and service groups, and advertising in leading refrigeration and business magazines.

More than a million individual pieces of promotion material were provided servicemen alone last year, and advance requests for the 1953 plan indicate that number will be exceeded by a considerable margin.

The new kit for wholesalers includes promotional brochures, window streamers, and shop signs, while servicemen can obtain, through their wholesalers, a series of five mailing pieces for use in contacting their own customers.

In conjunction with last year's program, many servicemen sold equipment owners preventive maintenance contracts which provided for regular inspections of their equipment during the "off cooling season" so that defects could be found and remedied easily and inexpensively before the summer demand for cooling began.

Adjustment Simplified On Water Cooler Pedal

A new design of foot pedal linkage has been incorporated in General Electric Co.'s newest models of water coolers. The design now includes a turnbuckle in the push rod for simplified adjustment. The bubbler valve travel can now be changed by merely turning the turnbuckle.

Proper method for adjusting the stream height is:

(1) Fully depress the foot pedal.

(2) Adjust the turnbuckle so the bubbler valve is fully depressed.

(3) If the water stream is not correct, make final adjustments with the adjustment screw on the bubbler valve.

Safety Tips On Electrical Equipment

Do not use electrical equipment or activate circuits if your hands are wet or if you are standing on wet ground.

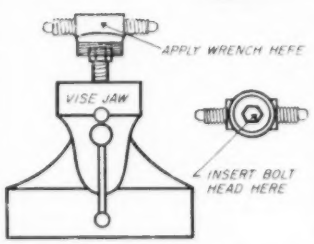
All power tools should be grounded. On three-prong plugs this is done automatically when the plug is inserted. On tools using the standard two-prong plug there may be a built-in third wire in the cord with a clip on it. This clip should be firmly attached to a water pipe or other grounded object before the plug is inserted. If there is no clip coming out of the cord, you should ground the tool by attaching one end of a wire to the metal frame of the tool and the other end to a grounded structure.

Extension cords should not be run across aisles or through oil or water. Cords should be inspected for kinks, worn insulation, and exposed strands of wire before use.

When fuses blow continually it is an indication of an overload or short. This condition should be remedied.

To prevent static sparks, keep drive belts dressed. Also check belts for proper tension to prevent overloading motors.

I DO IT THIS WAY



WHEN removing the packing gland nut on some types of liquid indicators in order to remove the glass for cleaning, a hex wrench of the desired size is not always available. It usually is quite easy, however, to find a bolt with a head which is the right size to serve as a wrench. Simply clamp the shaft of the bolt in a vise, with the head upright. Then fit the gland nut onto the bolt head, and the nut may be easily removed by applying a wrench to the fitting.

H. Custer
Center Line, Mich.

I DO IT THIS WAY

I MAKE a practice of installing a thermal wall switch near all fractional-hp units with either high or low voltage. Then if for any reason there is under voltage, overloads from poor air circulation, etc., the thermal unit kicks out, saving the necessity of a motor overhaul.

So far every user has been enthusiastic after he has seen the system work and has ordered additional thermal units for other applications. It is much cheaper to buy a thermal unit than it is to pay for a motor overhaul, and whatever damages result from being without a motor until repairs can be made.

These units moreover, can be used for other applications by merely changing the heater units.

Leland C. Wright
Cathlamet, Washington

Performance!

Long Life!

Economy!

Liberal Warranty!

4 SOUND REASONS

for the rapid increase in demand for

SERVEL SUPERMETIC

America's Most Dependable Electric Condensing Units

Over 100 Authorized Wholesale Supply Depots now sell Servel Supermetics. Write for address of the one nearest you.

Servel

THE NAME TO WATCH FOR GREAT ADVANCES IN REFRIGERATION AND AIR CONDITIONING

SERVEL, INC., ELECTRIC REFRIGERATION DIVISION
EVANSVILLE 20, INDIANA

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THRONGING THE AISLES and the exhibit booths at the 8th All-Industry Show were thousands of buyers and prospective buyers of all types of refrigeration and air conditioning equipment. The record crowds of visitors from all parts of the country were indicative of the rapidly expanding interest in these fields.

8th All-Industry Show Tops All Records

"BIGGER and better than ever" — that was the concensus of all concerned as the 8th All-Industry Refrigeration and Air Conditioning Exposition swelled to an impressive new size, breaking all previous records for number of exhibitors, amount of exhibit space sold, and number of visitors attending.

Getting down to figures, this year's Show topped the 1951 exposition in Chicago, the previous all-time high, in every dimension. Some 234 exhibitors used over 64,000 sq.ft. of floor space, compared with 218 exhibitors and 56,000 sq.ft. for the Chicago show. Approximately 13,500 registrations were chalked up in Cleveland last month, against 11,515 for the Chicago event.

Some 5000 models of unitary equipment and component parts were on display at the 1953 Exposition, and the value of this equipment alone, exclusive of booths and display materials, was estimated at more than $2 million. More than 2500 representatives of manufacturing firms were on hand to explain this equipment to Show visitors.

The nature of displays at the Show reflected an increased emphasis on such phases of the industry as new industrial uses of refrigeration in production processes, uses of air conditioning for precision control in manufacturing as well as for employee comfort, new uses of refrigeration for merchandising, new types of air conditioning systems for homes as well as for business establishments.

A tremendous increase in the air conditioning of offices, stores, homes, and factories will be achieved in the next few years, according to a survey of the exhibitors at the Show. The survey was compiled by Air-Conditioning and Refrigeration Institute. Setting one-third the total number of units as the

Continued on page 55

Buying Interest . . .

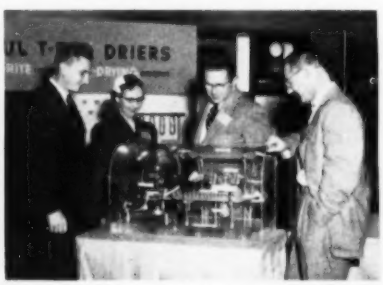
. . . is what pays off at any trade show. The pictures on this page typify the sincere interest in new products and processes evidenced by visitors to the 8th All-Industry Refrigeration and Air Conditioning Exposition in Cleveland last month.

All photos on these pages were taken by:
Austin Jones, Kerotest Mfg. Co.
Irving Alter, Harry Alter Co.

ABOVE: S. James Krakow (right), executive vice president of Frigid Igloo Mfg. Corp., points out to Frank Hubner of Carvel Corp., New York City, some of the outstanding features of the hot gas defrost system on one of his firm's frozen food display cases. Scenes like this, repeated in virtually every booth up and down the aisles, typified the intense "buying interest" exhibited at the Show.

LEFT: Listening intently as M. T. Bard (second from left), of the Chrysler Airtemp sales organization explains the operation of Airtemp's new air cooled residential packaged air conditioner are Harold Hager and E. C. Fox of Hager Fox Heating & Air Conditioning Co., Lansing, Mich., and A. D. Nicholson of Airtemp. **CENTER:** Warren Kahn (left) of Harry Alter Co.'s New York City branch and George Boone (right), New York representative for Tecumseh Products Co., lend an ear as Larry Larsen, Tecumseh's sales manager, extols the virtues of one of the company's compressor models. **RIGHT:** E. B. Dunphy (left) of Acme Industries, Inc. and Carl H. Miller of Refrigeration & Electric Supply, Little Rock, Ark., examine Acme's "Flow Temp" heat pump, as Salvatore Rubino, Rubino Refrigeration, Newburgh, N. Y., gets a sales pitch in the background from Joseph Pennesi (right) of Acme.

LEFT: Leroy Monti of Temprite Products Corp. sells Charles Kaplan and Ralph C. Haig of Haig Refrigeration, St. Louis, Mo., on the features of Temprite's F-22 oil separator. **CENTER:** M. H. Gwynn, Nashville, Tenn., representative of Tranter Mfg., Inc., demonstrates the operation of the new Kold-Hold truck plate hangar to W. E. Nance of the Starr Co. in Nashville. **RIGHT:** John Marling, Dayton, Ohio, representative of Jackes-Evans Mfg. Co., tells B. E. Freitag of General Electric Co., Bloomfield, N. J., and R. H. Bohr of Federal Boiler Co., Midland Park, N. J., how the company's solenoid valve functions.



LEFT: Sales features of a new recording thermometer are checked off by L. B. Murphy (right), sales manager of the instrument and gauge division of Electric Auto-Lite Co., for the benefit of Philip Conrad (third from left) from Hartsville, Pa., as the following members of the Auto-Lite organization look on: L. R. Kubiak, R. R. Hopkins, Thomas Murchie, and C. E. Daly. **CENTER:** Robert C. Hood (right), president of Ansul Chemical Co., talks up his company's products with Charles B. Coombs, sales manager of Lehigh Mfg. Co., Mrs. Coombs, and Christy Furlow, Lehigh's assistant sales manager. **RIGHT:** O. H. Lee (second from left), of Refrigeration Supply Co., Richmond, Va., smilingly listens to Harry "Red" Laird, C. E. Whipps, and G. E. Graff, of Ranco, Inc.

HEADING NCRSA activities for the coming year will be these newly elected officers and directors. Seated, left to right, are: S. W. Davis, Jr., treasurer; G. F. Wiedemer, 1st vice president; R. J. Wischusen, president; S. G. Taylor, 2nd vice president; and Marie H. Lawton, who continues as executive secretary. Standing, in the usual order, are the following members of the board of directors and the advisory board: I. W. Shell, immediate past president, Chicago, Ill.; C. S. White, Cincinnati; Paul Allen, Little Rock, Ark.; Russ Maintain, Woburn, Mass.; D. M. Cawthon, Miami, Fla.; H. A. Hattenbach, Cleveland, Ohio; D. D. Denny, Dayton, Ohio; S. W. Bushnell, new director, Seattle, Wash.; Ward Soanes, Buffalo, N.Y.; Milton Schwartz, new director, New York City. R. W. Winther, also a newly elected director, was not present when this group photograph was taken.

Panel Discussion Sparks NCRSA Meeting; 15 Dealers and Manufacturers Join Ranks

MORE than 200 members of the National Commercial Refrigerator Sales Association registered for that group's 7th annual convention held at Cleveland Nov. 9 and 10 in conjunction with the All-Industry Exposition.

So successful was this meeting that no less than 13 active (distributor) and 2 associate (manufacturer) members added their names to the organization's roster during the convention period.

Wischusen Is President

Elected president of NCRSA for the coming year was R. J. Wischusen of Engineering & Refrigeration, Inc., Jersey City, N. J. Other new officers unanimously named by the group were: 1st vice president, George F. Wiedemer, Cable-Wiedemer, Inc., Rochester, N. Y.; 2nd vice president, S. G. Taylor, Taylor Refrigerator Co., Des Moines, Iowa; treasurer, S. W. Davis, Jr., S. W. Davis, Jr., Inc., Greensboro, N. C.

Three new directors, with terms expiring in 1956, also were elected. They are: Milton Schwartz, S. & M. Schwartz & Co., New York City; Sherman W. Bushnell, Refrigeration Engineering Co., Seattle, Wash.; and R. H. Winther, Ray Winther Co., San Francisco, Calif.

Program of the meeting was packed with talks by both distributors and manufacturers of commercial refrigeration equipment on various phases of distributor operations. Digests of many of these talks will be published in future issues of COMMERCIAL REFRIGERATION AND AIR CONDITIONING magazine.

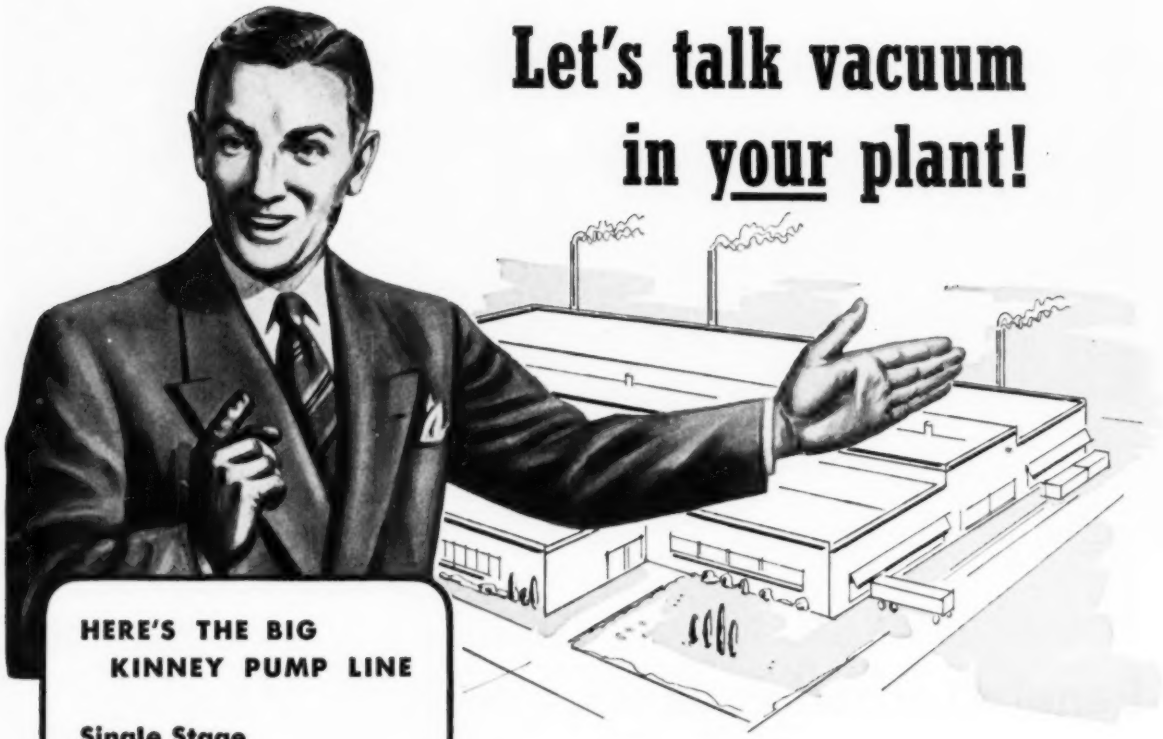
One entire afternoon session was devoted to a panel discussion covering the broad subject of "Food Store Planning, Installation and Service, and Refrigeration Engineering". Members of this panel, who were kept busy answering a barrage of questions from the floor, were: Milton M. Katz, Ever-Ready Refrigeration Co., Trenton, N. J.; E. L. Hayes, Detroiter Refrigerator Mfg. Co., Detroit, Mich.; George Schoenbacher, Red-E-Cold Refrigerator Co., Chicago, Ill.; and Sherman Bushnell, Refrigeration Engineering Co., Seattle, Wash.

Members Air Problems

This panel discussion was broken down into three main sections. Under food store planning, some of the points covered included design and layout, shelving and gondolas, special fixtures, and color schemes. Factors included in the discussion on installation and service were cartage, delivery and erection, proper installation, and servicing problems. Both applied refrigeration and air conditioning were covered in the discussion on refrigeration engineering.

The panel discussion was followed by a presentation of projected slides covering various phases of the operations of several member firms. A representative of each participating distributorship provided a running commentary on the slides submitted by his company.

Let's talk vacuum in your plant!



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Single Stage

Model DVH 27.20.34	1800 CFM
Model DVM 18.14.20	780 CFM
Model DVD 14.14.18	486 CFM
Model DVD 14.9.18	311 CFM
Model DVM 12.8.14	218 CFM
Model DVD 8.8.10	110 CFM
Model VSD 8.8.11	52 CFM
Model VSM 7.7.8	27 CFM
Model VSM 5.5.6	13 CFM

Compound

Model CVM 8.6.10	46 CFM
Model CVM 5.5.6	15 CFM
Model CVM 3534	5 CFM
Model CVM 3153	2 CFM

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Kinney

There's a qualified Kinney Vacuum Engineer in your region, ready to talk vacuum in *your* plant. Call on him. See how the BIG LINE . . . the *Kinney* line of vacuum pumps can be profitably used in exhausting lamps and tubes, freeze-drying pharmaceuticals and antibiotics, vacuum metallizing, vacuum production of titanium and other miracle metals, vacuum fumigation and impregnation — and in the countless other ways vacuum serves industry today. Kinney Manufacturing Co. — manufacturers of vacuum and liquid pumps. Boston, New York, Chicago, Detroit, Cleveland, Atlanta, Pittsburgh, Philadelphia, Los Angeles, Charleston (W. Va.), Houston, New Orleans, San Francisco, Seattle, and foreign countries.

2 IMPORTANT ANNOUNCEMENTS

GAS BALLAST

when applicable — All sizes of Kinney Vacuum Pumps can be equipped with gas ballast to assist in your water-oil contamination problems.

NEW MECHANICAL BOOSTER PUMP

Model MB 1200. "Clean" vacuum . . . extremely high pumping speeds (1000 CFM at 10 microns) . . . low power (15 HP) . . . particularly suited for metallurgical processes where large volumes of gases are liberated.

***FOR DETAILS WRITE* KINNEY MANUFACTURING CO., 3618 WASHINGTON ST., BOSTON 30, MASS.**

Circle No. 19 on Reader Service Card

RACCA OFFICERS and directors for the coming year are shown here in a recess during their meetings at the All-Industry Show. Front row, left to right: Miss Edna Berggren, executive secretary; Dudley M. Cawthon, recording secretary; A. M. Palen, first vice president; George T. Howe, president; Ralph W. Lampie, second vice president; Ralph E. Manns, treasurer; B. C. McCall, sergeant-at-arms. Back row: T. A. Reina, immediate past president; Henry T. Ely, Los Angeles; William J. Schemers, Detroit; E. W. Farr, Jr.; Cleveland; R. W. Noll, Los Angeles; Lee J. Quinn, Cincinnati; Harvey O. Miller, Chicago; Ray Kromer, executive vice president, E. S. Wright, past president and advisory member of the board of directors. These same officers headed the group last year.

RACCA Re-elects Full Slate of Officers To Head Revitalized Expansion Program

ALL present officers and directors of Refrigeration and Air Conditioning Contractors Association were re-elected for the 1954 fiscal year at the 8th annual convention of RACCA in the Hotel Carter, Cleveland, during the All-Industry Show.

Continuing as president is George T. Howe, of Accurate Heating and Cooling Corp., Chicago; first vice president is A. M. Palen, of Palen Refrigeration, St. Paul; second vice president is Ralph W. Lampie, of Lampie Refrigeration Service, Richmond, Va.; recording secretary is Dudley M. Cawthon, of Dudley M. Cawthon, Inc., Miami; treasurer is Ralph E. Manns, of Ralph E. Manns Co., Wilmington, Calif.; sergeant-at-arms is B. C. McCall, of Lilie & McCall, Inc., Chattanooga; and T. A. Reina, of M & R, Inc., Brooklyn, N. Y., continues as immediate past president.

Directors in addition to the officers named above are Ernest W. Farr, Jr., of Bell Refrigeration Corp., Cleveland; C. C. E. Harris, of Harris Refrigeration, Cambridge, Mass.; Harvey O. Miller, of Murphy & Miller, Chicago; R. W. Noll, of Commercial Refrigeration Co., Los Angeles; Lee J. Quinn, of Lee J. Quinn Co., Cincinnati; and William J. Schemers, of Schemers Refrigeration, Detroit.

Publishers Present Views

Speakers at the two-day meeting included Russell Metzger, vice president of the Central National Bank of Cleveland, whose subject was "General Economic Conditions with Regard to Refrigeration and Air Conditioning"; Don Petrone, president of Typhoon Air Conditioning Co., New York, discussing "Selling Air Conditioning for Profit"; William J. Stelpflug, president of Hussmann Refrigeration, St. Louis, speaking on "Refrigeration — Food and Design Problems"; Irving B. Hexter, publisher of COMMERCIAL REFRIGERATION AND AIR CONDITIONING; and George F. Taubeneck, publisher of Air Conditioning & Refrigeration News.

Texts of some of these talks will be published in succeeding issues of COMMERCIAL REFRIGERATION AND AIR CONDITIONING magazine.

At the closing session of the RACCA meeting, Ray Kromer, executive vice president of the organization, presented a 10-point program pointing to future RACCA progress, and outlining the new services that the national body plans to make available to local and state members. A complete outline of this program was published in our November issue, and additional details of the movement will be published as they are made available.

Among the social features, a cocktail party for members and guests was held, with the Cleveland chapter of RACCA as hosts.

REWA'S NEW OFFICERS and directors pose for their "inaugural portrait". Seated (left to right) are: H. W. Welker, Jr., secretary; E. L. Tramposh, treasurer; N. K. Mason, president; R. E. Warwick, secretary; and B. V. Blazer, retiring president and newly elected director. Other new directors of the association are (standing, left to right): W. C. Miessemer, Alex Holcombe, Jr., C. G. Koopman, Irving Fajans, J. P. Glass, and Louis Snell. These are the men who will direct all REWA activities for 1954.

REWA Airs Manufacturer-Wholesaler Relations

NEDFORD K. MASON, president of Mason Supply Co., Columbus, Ohio, was elected president of Refrigeration Equipment Wholesalers Association at that group's 18th annual meeting held Nov. 8-9 at Cleveland in conjunction with the 8th All-Industry Show.

Other REWA officers elected for 1954 were: vice president, R. E. Warwick, Plumbing Wholesale Co., Jackson, Miss.; secretary, H. W. Welker, Jr., Hasco, Inc., Greensboro, N. C.; and treasurer, E. L. Tramposh, Refrigeration Equipment Co., Kansas City, Mo.

B. V. Blazer of M. Blazer & Son, Passaic, N. J., retiring president of REWA, was elected to the group's board of directors, as were the following: Alex Holcombe, Jr., Victor Sales & Supply Co., Philadelphia, Pa.; J. P. Glass, Chase Supply Co., Inc., Chicago, Ill.; W. C. Miessemer, Arizona Refrigeration Supplies, Inc., Phoenix, Ariz.; C. G. Koopman, Supply Distributors Corp., Boston, Mass.; Irving Fajans, Aetna Supply Co., New York City; and Louis Snell, Snell Refrigeration Supply Co., Dallas, Tex.

REWA's program for this meeting revolved around a series of small group discussions, with each group consisting of no more than six persons. This technique made it possible for every member attending the meeting to take direct part and have an active voice in the problems and policies discussed. Results of these small group meetings were then sifted, and the most important matters were brought up for review before the entire group.

"Old Timers" Honored

An innovation at this year's REWA meeting was a dinner for past presidents of the association, a group of "old timers" in the organization which now numbers 17.

REWA's social schedule was climaxed by the association's annual banquet, preceded by the officers' reception. At this banquet, awards for distinguished service to the organization were presented to Benjamin V. Blazer, Paul D. Cato, Joseph S. Kimmel, Joe Wakefield, Elmer H. Davey, James H. Downs, and Harold Stern.

Also at the banquet, REWA's traditional 15-year membership awards were presented to the following firms: California Refrigerator Co., San Francisco, Calif; H. V. Dick Co., Inc., Charlotte, N. C.; Hinshaw Supply Co., San Francisco; McCombs Supply Co., Denver, Colo.; M & E Refrigeration Accessories Co., Philadelphia, Pa.; and R. E. Thompson Co., St. Louis, Mo.

Some interesting points of the manufacturer vs. wholesaler picture were reviewed during a panel discussion which was one of the high points of the REWA annual meeting.

With Ned K. Mason, REWA vice president, as moderator, representatives of both "sides" told how they thought present operations might be improved to make the future more profitable.

Leading off as speaking for wholesalers generally was A. B. Schellenberg, of United Refrigeration Co. He mentioned the need for greater standardization on the part of manufacturers respecting replacement parts, the holding of wholesalers' present profit margins,

and in general a more clear-cut statement of policy as a requirement on the part of manufacturers, plus a following out of that policy by manufacturers.

Prices, he said, should cover freight, since this is an important factor to the wholesaler in determining sales prices. Field representatives, he said, could be of great help to manufacturers in individual territories by suggesting most desirable methods of shipping.

In respect to inventories, Schellenberg said that manufacturers should keep wholesalers' stocks in mind when they make changes in their products. By letting the wholesaler know sufficiently in advance, many present problems might be eliminated, he said.

AMAZINGLY CLOSE was the winning guess in the contest sponsored by Viking Copper Tube Co. in its booth at the Show. Visitors were asked to estimate the length of a huge coil of copper tubing on display. Actual length of the coil was 2843 feet, 8-5/16 inches. Mrs. Ken L. Crapeau, whose husband heads Chrysler Airtemp's export department, came closest with a guess of 2842 feet, 11 inches. Second was R. J. Walsh, General Electric Co., Philadelphia, with a guess of 2842 feet, 6⅝ inches.

Speaking for his own company as a manufacturer, H. F. Spoehrer, of Sporlan Valve Co., pointed out that while no general policy could be followed in the industry because of the wide diversity of products now being distributed through wholesalers, it is important to the manufacturer to see that the wholesaler has sufficient margin to make a profit — otherwise the manufacturer's profit picture is darkened.

Things which the manufacturer should be able to expect from a good wholesaler, Spoehrer said, include:

1. He should be considered part of a manufacturer's organization. He should be more aggressive in the merchandising of the individual manufacturer's line. This, Spoehrer said, has been a principal complaint by manufacturers.

2. Wholesalers should handle only one or two lines in a class, and actively promote them in the manufacturer's interest.

3. The wholesaler's organization should learn the manufacturer's product, and its sales and construction features. If possible, he should visit the plant to see how the products he's selling are made.

4. Wholesalers should sell their products, and not just be order-takers.

5. The wholesaler should train and equip his organization to do a sales job for the manufacturers he represents.

6. Wholesalers should maintain an adequate stock of parts, covering all popular sizes and items. These products should be attractively displayed, with older stock located up front, newer stock behind this.

7. Manufacturers' sales literature should be used effectively. Wholesalers should not ask for more literature than they need, and should use what they get for the education of both their own sales organization and their customers.

8. Representatives of both manufacturer and wholesaler should travel together wherever possible to accomplish a more effective sales job.

9. Suggested resale prices should be maintained. Once price cutting is started, others will follow and everybody concerned will lose money.

10. While a wholesaler is handling a manufacturer's line, he should follow that manufacturer's sales policies. If he doesn't agree with them, he should discontinue handling that line. Inoperable parts should be returned promptly, and the reasons for their return should be fully explained.

SHOW SETS RECORD . . . . .

Continued from page 49

tentative market maximum, because of income and varying climate conditions, this study indicated that Show exhibitors believed one-third of all offices in the country will be air conditioned within 4½ years, and that a similar proportion of retail stores will be air conditioned within 5 years. One-third of all homes should be air conditioned within 8 years, according to the survey, and one-third of all factories within 12 years.

At the same time, the study showed that the industry expects the two major developments of the next 5 years will be year-round conditioning in homes and automotive air conditioning.

A rapid replacement of food store shelving by low temperature cabinets for frozen food also is expected, according to the survey. Many exhibitors expressed the belief that larger individual units for supermarkets, and more of them, are in prospect. The handling of fresh fruits and produce is also expected to be revolutionized by refrigeration equipment of newer types.

Rapid progress in medical applications of refrigeration also was foreseen. Among other developments expected, according to the survey, are demands by labor unions for air conditioning as part of their contract terms.

Nall Named To Head RSES

ELECTION of officers climaxed the 16th annual convention of the Refrigeration Service Engineers Society held at Cleveland last month in conjunction with the 8th All-Industry Refrigeration and Air Conditioning Exposition, with J. D. Nall of Miami, Fla., being named to head the organization's activities for the coming year.

Other officers elected were Charles Bell, Fresno, Calif., 1st vice president; H. T. McDermott, Chicago, secretary; Carl W. Neisel, Corpus Christi, Tex., treasurer; William E. Tierney, Worcester, Mass., Sgt.-at-arms; John H. Spence, St. Louis, Mo., chairman of educational and examining board; and J. Marshall Lock, 2nd vice president.

Members elected to the board of directors included Al Dellheim, Chicago; J. M. Turner, Montreal; Allen Manning, Newark, N. J.; Charles Titus, Bolivar, Mo.; Kelvin Dawson, Olympia, Wash.; and George Klahn, Minneapolis, Minn.

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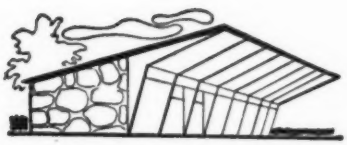

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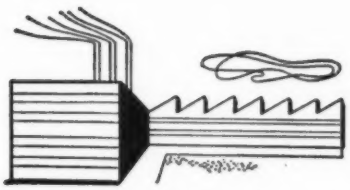

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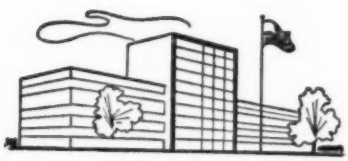

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THIS SPECIAL SECTION is devoted to all phases of Air Conditioning — Residential, Commercial and Industrial, including both self-contained packaged units and central-station type equipment for seasonal or year-round application.

It includes information on the merchandising, selling, installation and maintenance of Air Conditioning equipment, reports on the New Products which are being introduced in this field, and announcements of Literature available from manufacturers.

Our readers have shown they appreciate this service, and the convenience of being able to locate quickly all the information on Air Conditioning in each issue in this special section of COMMERCIAL REFRIGERATION AND AIR CONDITIONING.

THE HEATING SIDE OF AIR CONDITIONING

by Wm. Henry Knowlton

Radiant Heating with Glass Wall Panels

A new profit possibility for the air conditioning contractor

FOR many years the heating and air conditioning fraternity dismissed the idea of electric heating as "too expensive" until the advent of radiant glass heating panels a few years ago. When these panels were first made available in the fall of 1948, both the trade and the public were still skeptical.

As a matter of fact, the first installation was not sold in the Detroit area until the heating contractor posted a substantial bond to guarantee that the operating cost for the first year would not exceed a certain figure. There was no need to keep his money tied up for any considerable period, however, as by Christmas time the owner was satisfied that he was not going to have excessive costs, and at that time paid for the installation.

Since then, some 300 installations have been made in the Detroit area, and over 700 in Cleveland. It is estimated that over 100,000 jobs have been installed in various parts of the country, and both the trade and the owners are enthusiastic about the results.

One extremely interesting observation is that while many installations of radiant glass panel heating have been made in the homes of very wealthy people (who make the purchase on the basis of "pride of possession", because they like to impress their friends), the majority of installations have been in modest homes that might normally have space heaters of one type or another.

Particularly in areas where utility rates are low—2 cents per kwh and under — radiant glass heaters have found their way into cottages, cabins, trailers, tourist courts, gasoline stations, churches, schools, residences and various other types of buildings.

In northeastern Michigan, where the utility rate has recently been reduced to 1¾ cents, the glass heating business is having a bonanza. Summer cottages normally closed in winter are being kept cozy and warm through the deer hunting and skiing seasons with radiant glass panels.

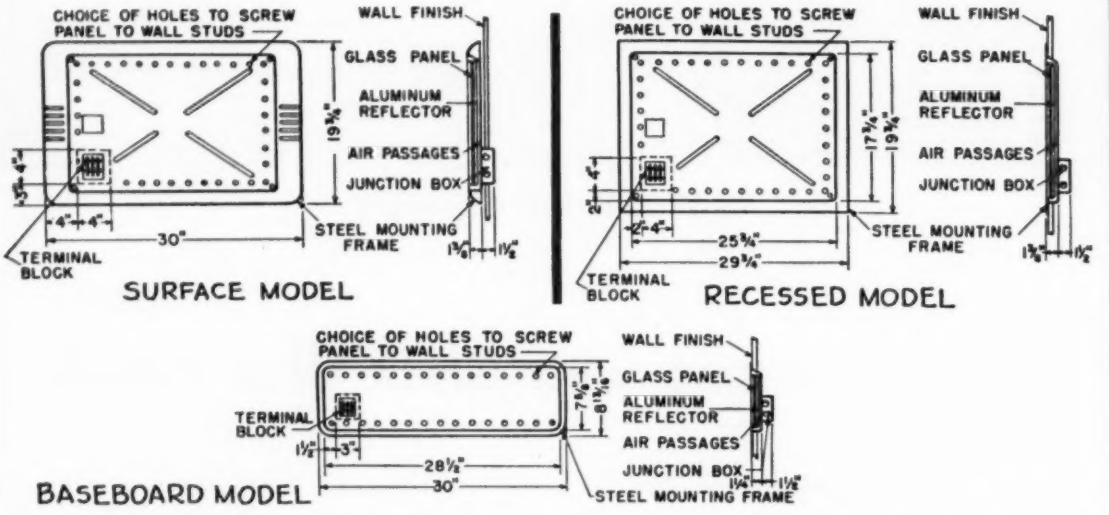
GLASS PANEL for electrical radiant heating in a typical under-the-window installation.

People who have had considerable experience in the distribution of glass heating panels realize that operating costs bear a direct ratio to the insulation of the building. For this reason, in homes, offices, and small commercial buildings designed for year around use, they insist upon the better types of insulation (such as 3¾ inches of wool in the walls and ceiling), complete storm windows, and storm doors.

When they know the building is well insulated, they know the owner will not have excessive operating costs. Thus we find many heating men fighting the insulation man's battle, in a way that it has never been done before.

In the north central portion of the country, the average small residence with two or three bed rooms requires ten glass heating panels. It is estimated that each of these will cost about $25 per year to operate, with a total cost of $250 for the season. This figure, at a 2¼ cent electric rate is admittedly high—about $100 higher than the cost of oil or gas—but owners do not seem to consider it to be excessive in relation to benefits received.

In the first place, the cost of the original electric heating installation is considerably lower than conventional heating systems. It costs about $850 to install the ten panels, using either 220-volt or 110-volt current. This means that the orig-



DETAILS OF CONSTRUCTION and installation for three types of electrical radiant glass panels.

inal cost is $400 to $600 lower than other types of heating, so the owner has the pleasant sensation of getting his heating "free" for the first few years.

Further, in modest homes not equipped with fire places, there is no need to build a chimney or stack of any kind. In addition, the owner has the advantage of absolute cleanliness, and perfect control of every room in the house.

The radiant glass panels are usually installed under windows, as shown in the photograph. A living room measuring about 11 x 14 feet requires two panels; smaller rooms need only one.

The individual heating unit consists of a ¼-inch thick rectangular glass panel, with an aluminum grid fused to the back of the glass. The glass itself is 20 times stronger than ordinary glass, making it virtually unbreakable. An aluminum reflector is placed between the glass panel and the back of the mounting frame.

Electricity passing through the aluminum grid raises the temperature of the glass panel to as high as 340 F. The temperature difference causes air to circulate through vents at the top and bottom of the panel, thus producing a combination of convection and radiation. The majority of the heat produced is radiant, however, from the infra red section of the spectrum.

The panels have been approved by FHA and Electric Testing Laboratories, and by many leading utility firms across the country. While the heat of the glass may be said to be "hot enough to fry eggs", there is no danger of burns from direct contact, because of the insulating qualities of the glass itself. Thermostats provide automatic operation.

The panels themselves are designed to be mounted against the wall, or, in a new building, recessed so they are flush with the wall. They may also be mounted along the baseboard.

Solves Many Problems

From the standpoint of the heating and air conditioning dealer, radiant glass panels offer a splendid solution for the "hard to heat room" problem. Installation may be made in a few hours, at reasonable cost, and the operating cost for a partial installation will be reasonable. There are an endless number of applications where the "hard to heat" room does not have a basement under it, making running of conventional pipes or ducts extremely difficult.

Many installations are being made today by electrical contractors, in a field that naturally belongs to the heating and air conditioning contractor if he would only recognize the enormous potential.

As in the case of any new product, manufacturers of radiant glass heating panels have had to overcome the normal number of troubles. Each unit must be carefully assembled and inspected. Proper installation methods are gradually overcoming the problem of breakage. Today it can be said that glass panel heating has arrived.

The heating and air conditioning contractor or dealer selling this new and improved method of heating will have many objections to overcome. The public is still skeptical about operating costs, but every installation made gradually reduces this feeling. Many utilities are today putting out elaborate mailing and advertising campaigns, singing the praises of electric heating. The wide awake contractor or dealer can easily take advantage of this situation.

The system has a powerful appeal to any home owner in low first cost, reasonable operating costs, complete freedom from dirt, elimination of the chimney, greater use of the basement area, and perfect control in every room.

For the contractor engaged in modernization or remodeling, the radiant glass heating panel offers the best answer to date for the hard to heat room.

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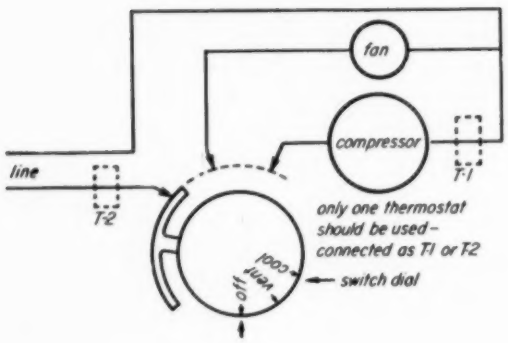

FIG. 1: Control connections for package conditioner.

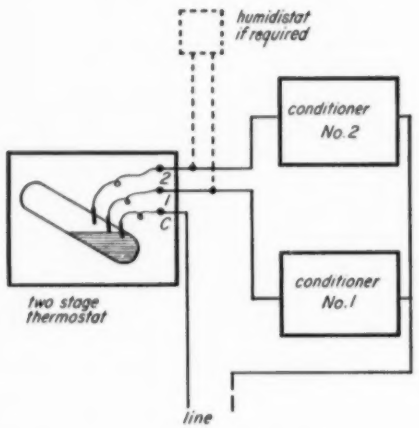

FIG. 2: Two-stage thermostat controlling two conditioners.

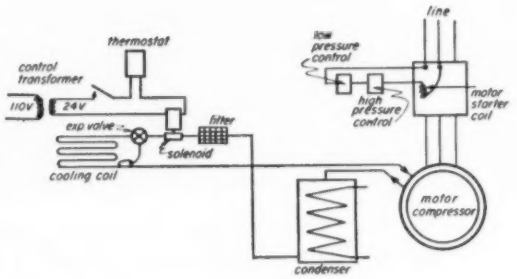

FIG. 3: Typical refrigerant control circuit.

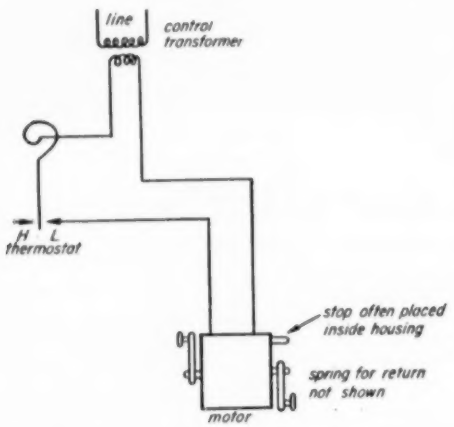

FIG. 4: Spring return motor circuit.

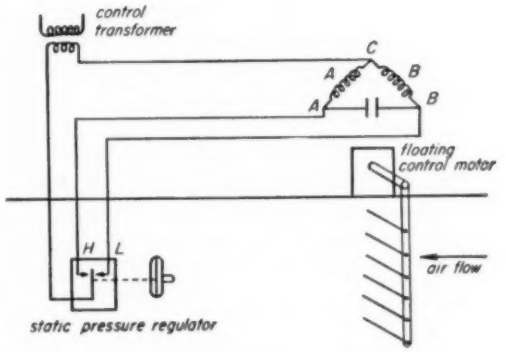

FIG. 5: Static pressure floating circuit.

# of air conditioning installations

Automatic control may be the answer to many of your air conditioning problems. Here is an up-to-the-minute digest of such control methods for the benefit of contractors, installers, and servicemen.

by Edward Dowis

AUTOMATIC control is rapidly being integrated into all types of air conditioning installations.

It can be applied to a single window or unit cooler. It may have decided advantages when applied to two or more unit coolers in the same space. In central or multiple systems it may control the operation of valves, dampers, fans, compressors or other equipment in response to outside or inside conditions, and insure better operation at lower cost than is possible with manual control.

The alert and informed serviceman will periodically determine if each control unit is operating and if replacements or additions are in order due to changed conditions or new developments.

Control equipment falls into four general classes as determined by the method of operation:

(1) Electric;
(2) Pneumatic;
(3) Self-contained;
(4) Hydraulic.

Both electric and pneumatic control systems are used extensively for air conditioning. Self-contained controls are limited to valves for controlling the flow of steam, water or brine to coils and where controller and valve are close enough to be connected by the tubing which is part of the assembly or where valve and controller can be mounted together. Hydraulic controls operate by liquid under pressure and find occasional use for specific applications.

Air conditioning control systems may be either electric, pneumatic or a combination of the two, with an occasional self-contained thermostatic valve or hydraulic device. Because each type has advantages for particular applications, combination systems are common in larger buildings. Electric controllers can operate pneumatic motors, valves, etc. — and vice versa — through relays.

Electric controllers are available for every air conditioning need. Classified as to service they perform, they are as follows:

Temperature Controllers, commonly called thermostats or by trade names. They are operated by

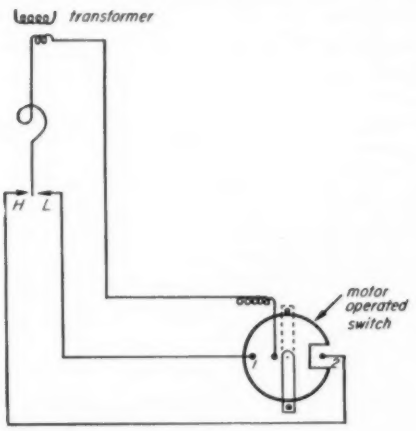

FIG. 6: Two position non-spring return motor circuit.

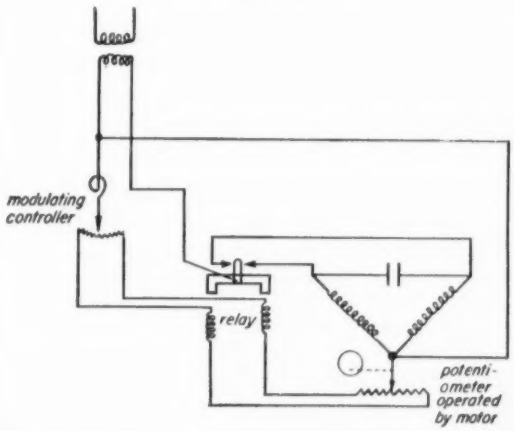

FIG. 7: Modulating control circuit.

the temperature of air, gas or liquid.

Humidity Controllers or humidistats, which contain hygroscopic elements and operate the controller when relative humidity changes.

Pressure Controllers, which operate by variation in pressure on liquids or gases.

Static Pressure Regulators, which operate damper motors to maintain constant static pressures and, consequently, constant air flow in ducts and other enclosures.

Each of these controllers is made in a variety of designs.

Pressure and temperature controllers may operate on the differential principle, maintaining differences in pressure or temperature rather than actual conditions. Wet bulb temperatures can be maintained with wet bulb temperature controllers. Recording or indicating controllers are made, usually for board or panel mounting, which, in addition to controlling, indicate or record on a chart the conditions prevailing anywhere in the system or building.

Effect on Circuits Cited

Electric controllers are of three types as regards the manner in which they affect the electrical circuit:

(1) Two Positions or on and off. These simply make or break a circuit when conditions occur requiring operation. The usual refrigeration controls which start or stop compressor motors, operate solenoid valves, etc. are typical examples.

(2) Floating. This is a controller which will operate a valve, damper or other motor in one direction until the desired result is achieved or until it reaches the extreme limit of travel. It will stop the motor in whatever position it happens to be when the circuit is broken by the controller. A floating controller usually has single pole, double throw switch action, with two positions operating the motor in opposite directions. Static pressure regulators are often of this type.

(3) Modulating or proportioning. This type of controller can cause a valve or damper motor to assume a position relative to the movement of the controller and thus modulate the flow of air, steam or liquid to maintain precise conditions. A modulating controller is required whenever it is necessary to position a valve, damper or other device at any of several positions.

A complete system may contain individual controllers of all three types, each selected for the particular job it has to perform. Voltage may be 110 or 220 for certain applications, but most valve and damper motors and their controllers are made for low voltage, usually 20 to 25 volts, as construction and wiring is less expensive and the shock hazard reduced.

Package conditioners are often supplied with only a three-position

"He wants to know if we're interested in buying a cooler!"

switch marked "off", "ventilate" and "cool", connected as indicated in Fig. 1.

A common method of adding automatic control is to use a thermostat with an adapter which plugs into a standard receptacle. The conditioner is, in turn, plugged into the adapter. When the temperature is reduced to the thermostat setting, the power is disconnected and both fans and compressor are stopped.

A better method is to connect a two position thermostat of proper rating as to voltage and power, in series with the compressor only, as indicated by T-1, Fig. 1. This will permit the fan to circulate air and ventilate, if the dampers are so set, so long as the switch is on the ventilate or cool position.

The thermostat will control the compressor only. A thermostat connected in series with the line, as indicated by T-2, would operate the same as with a plug-in adapter. Obviously only one thermostat would be used, although the drawing shows both alternate ways of connecting this control.

Where two unit coolers are used in the same space, it is a decided advantage to control them by a two-stage thermostat. In this way, when the load is light only one will operate, so long as it can maintain the required temperature. The two-stage thermostat closes two circuits in sequence as the temperature rises. Stage 2 closes at a slightly higher temperature than stage 1.

Fig. 2 shows a mercury switch two-stage thermostat connected to two package units. As shown, connection C is connected to conditioner No. 1. If the temperature should continue to rise, the mercury switch will tilt slightly counterclockwise and connect conditioner No. 2. This method of control prevents short cycling and consequent fluctuation in temperature and humidity which would result from using full capacity intermittently.

Adding Humidity Control

Should it be desired to add humidity control to a two-stage system, an on-off humidity controller should be connected between the high and low connection of the two-stage thermostat as shown in Fig. 2.

When humidity rises above the controller setting, the circuit will close and operate both stages together, so long as the temperature calls for operation of either stage. This will increase the dehumidifying rate.

Two-Stage Use Explained

When the desired humidity is reached, the system will again operate on a two-stage basis. When the minimum desired temperature is reached, both stages will shut off regardless of the humidistat.

The same control connections can be applied to two cooling stages in a single package unit as for two unit coolers. Larger package conditioners sometimes have two cooling stages built in. The two stage thermostat and humidistat, if used, can be connected as in Fig. 2. The results will be the same as with two conditioners. The humidity control

Continued on page 86

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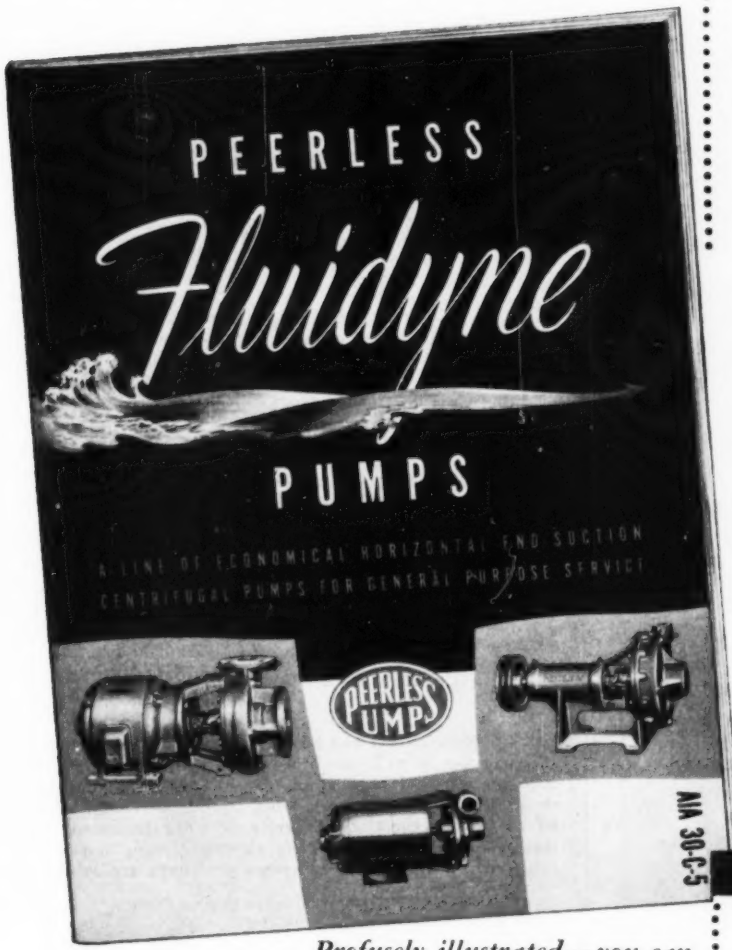

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You'll use this bulletin over and over again. From it you can select the proper pump for your liquid transfer service from one of the broadest lines of general purpose pumps offered by any manufacturer. In the complete Fluidyne pump line Peerless provides:

1. **ALL TYPES OF DRIVE,** electric, V- or flat belt pulley and flexible coupled drives.
2. **COMPLETE RANGE OF SIZES,** with motor sizes from ¼ to 150 hp.
3. **BROAD RANGE OF CAPACITIES,** from 5 to 5500 gpm.
4. **WIDE RANGE OF HEADS,** up to 260 feet.
5. **HIGH EFFICIENCY,** on all sizes.

Bulletin is complete with product illustrations and descriptions, pump cross sections, parts lists, dimensional data in both diagram and chart form, easy-to-read pump selection tables and pages of useful pump engineering data.

Write today for your free copy; or if you and your associates can use more than one, request a number of copies. Simply fill in the coupon below or use a penny postcard and request Peerless Pump Bulletin No. B-2300.

MAIL COUPON TODAY

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORP.
Los Angeles 31, California

Please send me a copy of Peerless Fluidyne Pump Bulletin No. B-2300.

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CR & AC

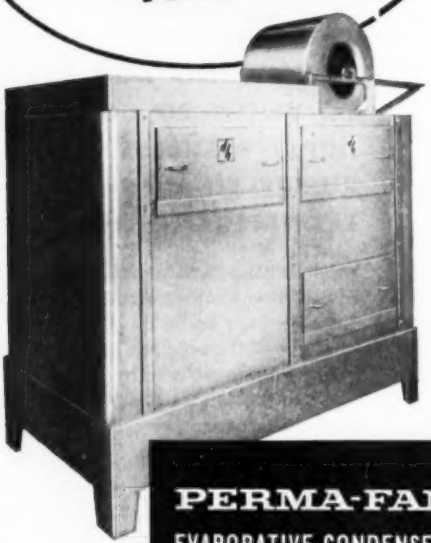
Circle No. 39 on Reader Service Card

Born of Experience...

first in 1937 with Blow-Through type evaporative condensers.

PROVED!

BY TROUBLE-FREE PERFORMANCE



PERMA-FAN

EVAPORATIVE CONDENSERS

FIRST to offer a blow-through type evaporative condenser that functioned with continuous, trouble-free performance—DRAYER-HANSON now introduces a newly designed, improved and greatly expanded line of evaporative condensers that utilize the blow-through feature along with design improvements in leak-proof housing construction, hot dip galvanized eliminators, circulating pumps, sump pan drainage and protective finish. In addition, corrosion and scaling of fans are eliminated because of fan location in the supply air stream. These newly designed units are manufactured with the same DRAYER-HANSON craftsmanship and high quality materials that earned the 1937 model a well-founded reputation for continuous and dependable service—even up to this date. Available in sizes ranging from 5 to 60 tons at 78°W.B.

For further information, write for free catalog, or consult your DRAYER-HANSON Agent today!

LONG *established in commercial refrigeration and air conditioning, DRAYER-HANSON offers a complete line of commercial refrigeration and air conditioning products.*

d-h SINCE 1919

drayer-hanson

INCORPORATED

1101 MEDFORD STREET • LOS ANGELES 63 • CALIFORNIA

Circle No. 40 on Reader Service Card

USEFUL LITERATURE On Air Conditioning

To obtain the information described below, simply circle on the postcard in this issue the key numbers of the items you wish to receive. We will forward your requests to the companies concerned.

COOLING UNITS for addition to central forced warm air heating systems are described and illustrated in a pocket-size folder and in a catalog sheet offered by Lennox Furnace Co. The folder contains illustrations showing various methods of installation in conjunction with different styles of heating equipment. The catalog sheet covers the CHI series air conditioners with vertical air travel. Included in the sheet are complete specifications and ratings, installation suggestions and complete dimensions.

Circle No. 101 on Reader Service Card

WINTER AND SUMMER CONDITIONING as provided by the Afco "Comfortmaker" packaged year-round air conditioning and heating unit is described in a 4-page bulletin, No. 134-A, available from American Furnace Co. This bulletin contains photographs of the various component parts that make up the unit and descriptions of the parts and their applications are included. Complete dimensions and specifications are also given.

Circle No. 102 on Reader Service Card

CONTROLS for refrigeration and air conditioning applications are covered in Penn Controls Inc.'s 1954 condensed catalog. This 24-page catalog contains complete information on applications, engineering data, dimensions and specifications and ordering procedure for the firm's full line of mechanical cooling controls. Featured in the catalog are a new type cooling tower control and a duct-fire protection control.

Circle No. 103 on Reader Service Card

HOW TO ELIMINATE WATER on any size refrigeration or air conditioning system through use of the "Unicon" self-contained remote air-cooled condenser is covered in application manual "U-250", presented by Kramer Trenton Co. The manual contains fully documented facts and illustrations of these units.

Circle No. 104 on Reader Service Card

AIR CONDITIONING and heating systems are presented for the consumer in an 8-page brochure available from Chrysler Airtemp. Typical installations are illustrated and descriptions of how the units work, what benefits air conditioning offers, etc., are contained. Separate units are illustrated and their application in a complete air conditioning system is explained. Both summer and year-round units are covered.

Circle No. 105 on Reader Service Card

HEAVY-DUTY TIME SWITCHES for automatic control of refrigerator defrosting, street lighting, store windows and other industrial applications are covered in bulletin GEC-535C presented by General Electric Co. Illustrations and descriptions of type T-27 time switch, rating data, dimensions and connections are included.

Circle No. 106 on Reader Service Card

(Turn to page 72 for more Useful Literature)

Bending's much easier

WHEN YOU WORK WITH

REVERE

REFRIGERATION TUBE

Truly, it's no effort at all to bend dead-soft Dryseal. No tools are needed, just bend it by hand. And the special temper of the copper used, and its ductility, are the reasons Dryseal will not split when flared for compression fittings. Another thing you'll like about Dryseal are the special, precise, mechanical, double-crimped ends. This double crimping is the last step in the manufacture of Dryseal, and assures you of receiving a bone-dry, dirt-free tube.

The seal is made in such a way that it does not change the diameter of the tube. This makes it possible to pass the tube through any opening large enough for the tube itself. Economical tube sizes range from ⅛" to ¾" O.D.

And, for your greater convenience, Dryseal is packed in a nifty-50 one-coil carton. This carton, which has been attractively designed for easy identification in stock, contains one 50-foot coil of Dryseal . . . is easier to handle, light weight, economical and is sturdily made to assure protection of the tube.

REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, N. Y.

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Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.— Sales Offices in Principal Cities, Distributors Everywhere

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Circle No. 41 on Reader Service Card

WHAT'S NEW...

in Air Conditioning Equipment

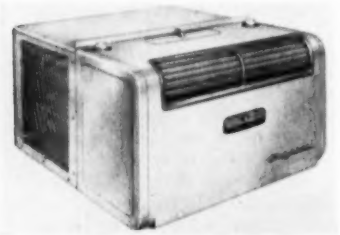
For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

(For more NEW PRODUCTS turn to page 75)

Room Cooler Line

Product: "Silver Anniversary" models of Frigidaire room air conditioners.

Manufacturer: Frigidaire Div., General Motors Corp., Dayton, Ohio.



Features: Two series of models offered are the "Twin", in ¾ and 1-hp units, and the "Super" with ⅓ and ½-hp units. Twin models available with supplementary "High-Flow" heating. All units have optional thermostat control for fully automatic operation. Twin series models have two separate refrigeration systems, with rotary-type "Meter-Miser" sealed compressors, backed by 5-year warranty. High-capacity centrifugal blower-type fan is housed behind the large aluminum finned cooling coil, is surrounded by special sound-absorbing material. Heavy-gauge cabinets have durable plastic air-delivery grilles. Trim is gold and chrome.

Circle No. 131 on Reader Service Card

Air Conditioner

Product: Basic air conditioning unit.

Manufacturer: Refrigeration Div., Curtis Mfg. Co., St. Louis, Mo.

Features: Basic unit can be used for all types of remote, duct-type cooling, is easily attached to modern home heating plant or it can be fitted with steam or hot water coils for year-round air conditioning. When a combination air conditioner and furnace is required, specially designed Curtis gas heating unit fits on top. For installations where packaged-type free-throw cooling is

desired, a special plenum is available to set onto the basic unit. Unit requires only 7 sq.ft. of floor space, is suitable for installation in closets, utility rooms, etc.

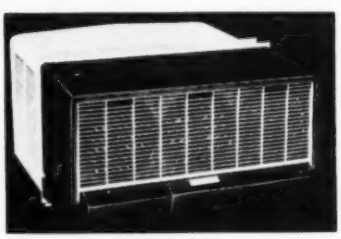
Circle No. 132 on Reader Service Card

Room Cooler Line

Product: Redesigned line of room air conditioners.

Manufacturer: General Electric Co., Appliance Div., Louisville, Ky.

Features: Line includes models in four sizes; 1, ¾, ½ and ⅓-hp. The ¾-hp unit will be available with reverse-cycle operation for heating in cool weather. The three larger size models, identical in appearance, have all-steel cabinet finished in mahogany-grain coat of baked enamel and an ornamental grille with a gold finish. Single control operates five different comfort positions, including a setting for extra dehumidification. Three circular louvers located behind the grille can be rotated independently. Two dials, mounted in recessed panel, turn unit on and off and control temperature selection. The ⅓-hp unit has two toggle switches mounted identically to those on the larger units. Cabinets of ⅓-hp units are finished in beige baked enamel, grille has tan finish. Air intakes on all models are located on the underside of the cabinet. All units are about 15" high and 26" wide. The



⅓, ½ and ¾-hp units are about 32" overall depth, extend about 14" into room. The 1-hp unit is 1" larger in overall depth and projection than other units.

Circle No. 133 on Reader Service Card

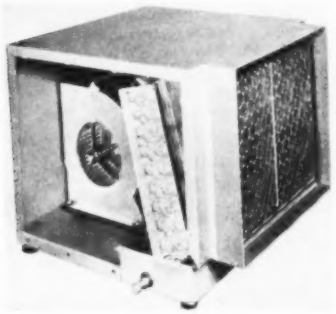
"Packaged" Coil

Product: Packaged evaporator coil blower unit.

Manufacturer: Airtemp Div., Chrysler Corp., Dayton, Ohio.

Features: Designed to speed installation of air conditioners in stores or homes where no forced

air heating system is used. Designed for use with Airtemp's 2 and 3-hp air cooled packaged air conditioners or with 2 or 3-hp water cooled condensing units. Assemblies slide quickly into the cabinet of the air-cooled packaged air conditioner. With water-cooled units, blower



units fit easily into standard size air supply ducts. Eliminates shop or on-the-job fabrication of blower and coil assemblies.Overall dimensions are: 24½" high, 32½" wide, and 32½" deep. Also available from the firm are prefabricated coil assemblies without blowers which are manufactured in both horizontal and vertical units.

Circle No. 134 on Reader Service Card

Year-round Unit

Product: "Palmaire, Jr.," evaporative cooler-heater-humidifier.

Manufacturer: Palmer Mfg. Corp., subsidiary of McCray Refrigerator Co., Phoenix, Ariz.

Features: Approved by UL, portable unit has a 1350 watt heating element that produces 4600 Btu, enough to warm up a room in the home or office. As a humidifier, unit is filled from the side through a pull-out trough. Specially built pump circulates water from the 2-gallon reservoir in the bottom of the unit over a specially developed spun glass pad. Air is completely filtered as it is drawn through pad for distribution by the fan. This humidified air can be warmed by means of the heating element or, unheated, the unit acts as an evaporative cooler. Unit can be used as an electric fan, will circulate 700 cu.ft. of air per minute.

Circle No. 135 on Reader Service Card

BUY FROM YOUR REFRIGERATION WHOLESALER

Blower Line

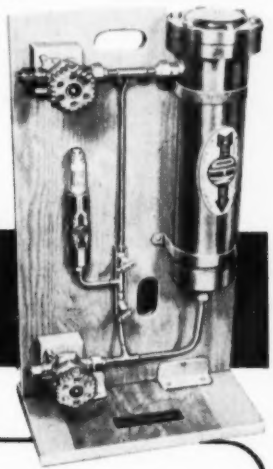
Product: Line of direct drive blowers.

Manufacturer: Morrison Products, Inc., Cleveland, Ohio.

Features: For cooling, heating and ventilating equipment, blowers are available with or without speed control. Produced in 1/12, 1/8 and 1/6-hp units, blowers take less space since motor is mounted inside squirrel-cage impeller. Rubber isolated mountings minimize vibration. Less inventory is needed since there are no belts, pulleys or motor

BIGGER SAVINGS THAN EVER!

DFN MOISTURE CONTROL UNIT



☆ 10% PRICE REDUCTION!

☆ 5 ADDED IMPROVEMENTS!

- More compact • Less weight
- New forged flange head
- Added inlet screen basket
- Shipped with cartridge installed—ready to use.

Portable service tool saves time — saves callbacks

NO guessing about moisture when you use the DFN Moisture Control Unit. A moisture indicator tells if system is wet—large cartridge drier takes out all water fast—indicator shows when dry. Refrigerant is dried to —60° dew point in a single pass. Foreign matter is cleaned up.

When indicator shows dry — remove Unit, install a small DC Filter-Drier and future troubles are over. Your Unit is ready for the next jobs—checking and drying old, reconditioned or new installations in field, shop or factory. Replaceable PERMAGRAN cartridge holds 18 teaspoonfuls of water—equivalent to 10 one-ton systems. Effective at liquid line temperatures up to 150° F. Thousands in use. See the improved DFN Moisture Control Unit at your wholesaler.

THE McINTIRE COMPANY, LIVINGSTON, NEW JERSEY

Our 28th Year

DFN Trademark DRIERS

PERMAGRAN DESICCANT FILTERS—STRAINERS

Circle No. 42 on Reader Service Card

mounts to buy. Units are engineered with specially designed, dynamically balanced blower wheels and a rigid motor bracket for mounting the motor resiliently. Two sizes of housings are available: Model 91-7DD is about 15" long, 15½" high and 9½" wide; Model 78-7DD is 13¼" long, 14¼" high, and about 9½" wide.

Circle No. 136 on Reader Service Card

BUY FROM YOUR REFRIGERATION WHOLESALER

Air Conditioner

Product: "Weather-wise" CU-3 packaged air conditioning unit.

Manufacturer: Aug. G. Barkow Mfg. Co., Inc., Milwaukee, Wis.

Features: Redesigned outlet on this model enables use with duct-work installations in small commercial applications as well as in homes. Unit is available with or without plenum. Height has been reduced from 48" to 35", unit occupies only 6¾ sq. ft. of floor space. Self-contained unit has an automatic thermostat and hermetically sealed condensing unit with the cooling coil surface on the side. All parts are accessible from the front panel for easy cleaning and service. Shipped completely assembled, unit is finished in green enamel. Compressor is 3-hp., uses "F-22" refrigerant. Counter-flow

cleanable type condenser, aluminum fin, copper tube condenser with capillary tube. Fan capacity is 1200 cfm. Fan motor is ¼-hp. Units have water regulator, magnetic starter, duo high pressure temperature cut-out and thermostatic control.

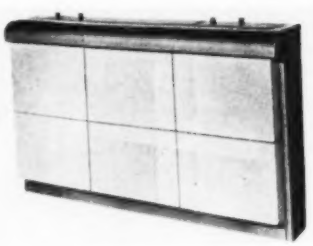
Circle No. 137 on Reader Service Card

Room Cooler

Product: Three sizes of room air conditioners.

Manufacturer: Brown Products Co., Forest Hills, N. Y.

Features: Completely factory assembled units require only simple plumbing and electrical connections. Units use cold water for

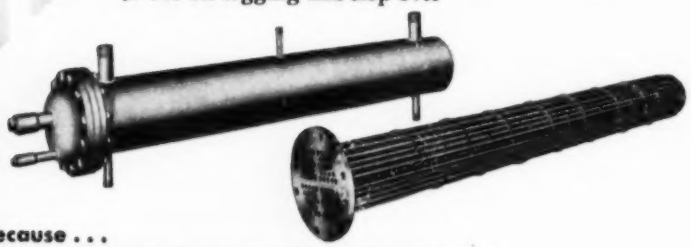


summer cooling and hot water for heating, are available in ⅝, 1 and 1½-ton sizes. Units are placed in rooms like the usual convector, have an adjustable grille which permits deflection of conditioned air to suit individual taste. Also available from the firm is a specially designed water chiller which is available with an air-cooled condenser. For basement installations, chiller is supplied with condensate booster

BETTER COOLING with Taco

"CONTROLLED VELOCITY" CHILLERS

1. Improved heat transfer
2. Rapid response to Thermal Expansion Valve
3. No oil logging and slop over



Because . . .

Taco's "Controlled Velocity" Tube Bundles . . .

Carry *all* incoming liquid to the top of the Chiller in the first pass.
Provide constant forward movement of *all* refrigerant and oil.
Prevent accumulation of liquid (refrigerant or oil) in any part of the Chiller.

And because . . .

Taco's "Controlled Velocity" Heads . . .

Agitate oil and liquid refrigerant, at each head pass, with a constant stream of expanding gas.
Provide unretarded flow of refrigerant.
Eliminate "traps" for oil and liquid refrigerant.

For full information and Taco's "pinpoint" Selection Charts, write for Bulletin CWF.

137 SOUTH STREET PROVIDENCE 3, R. I.

Circle No. 43 on Reader Service Card

to provide additional evaporative cooling. Factory assembled and requiring only simple electrical and piping connections, chillers are produced in 2 and 3-ton models.

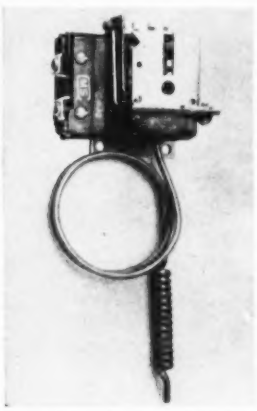
Circle No. 138 on Reader Service Card

"Package" Controls

Product: Single and 2-step air conditioning controls.

Manufacturer: Cutler-Hammer, Inc., Milwaukee, Wis.

Features: Designed as pilot devices for panel assembly on packaged air conditioning units, these controls regulate air temperatures and provide about 2° differential



over a range of 65 to 95 F. Cross-ambient fill of power element assures positive control of air stream regardless of room temperature. Illustrated single step unit uses one microswitch, is designed to operate with bulb in air stream. Two step control is designed for units which provide cooling capacity in two steps, uses two microswitches.

Circle No. 139 on Reader Service Card

Heat Pump

Product: Type HP heat pump.

Manufacturer: Westinghouse Electric Corp., Air Conditioning Div., Boston, Mass.

Features: Completely automatic heating and air conditioning system for complete heating, cooling and air conditioning. All-electric unit uses air for heat exchange medium, has reverse cycle for winter heating. Automatic operation of [illegible] cycle is made possible by a wall transfer valve control [illegible] thermostat, unit operates automatically. Need for expansion and check valves is eliminated through the use of a specially designed metering tube. Self-contained unit needs only electric, condensate drain, supply and return air connections for operation. Three-hp size unit requires only 10 sq.ft. of floor space. Most adaptable to areas where low temperature range is not extreme or of long duration. Air ducts return either under the floor at the bottom of the unit or through the side. Outside air connection normally stubbed directly through an outside wall. Heat pump is designed for installation with its back next to a wall and in one corner if necessary. Units are available in 3-hp model with a nominal heating and cooling capacity of 30,000 Btu/hr and a 5-hp model with a nominal capacity of over 50,000 Btu/hr.

Circle No. 140 on Reader Service Card

BUY FROM YOUR REFRIGERATION WHOLESALER

PA® 400

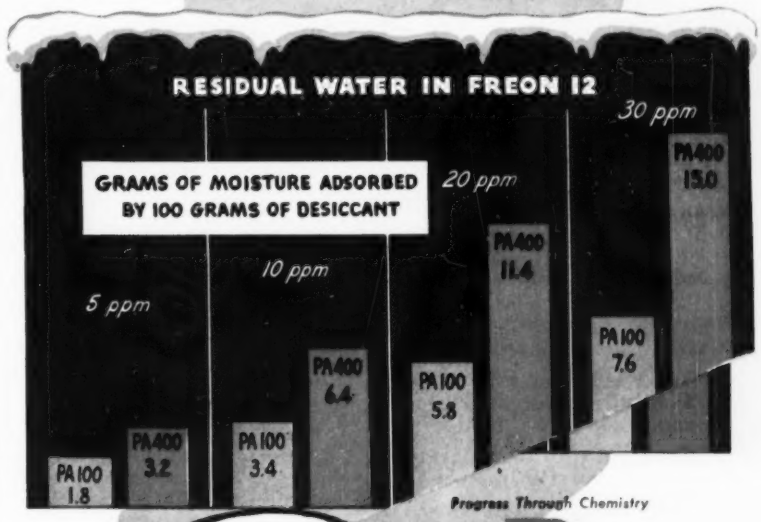
DAVISON'S NEW Refrigeration Desiccant

WITH GREATER MOISTURE ADSORPTION CAPACITY

Up to 98% increase in moisture capacity

The Davison Chemical Corporation has long been a leading producer of refrigeration desiccants and the manufacturer of PA 100 — the top desiccant in the field. Now, after many years of research, they have produced PA 400 — a refrigeration desiccant with a greatly increased adsorption capacity.

Tests run on the moisture adsorption capacity of PA 400 in Freon-12 in comparison with Davison's PA 100 show up to 98% increase in capacity.



Progress Through Chemistry

THE DAVISON CHEMICAL CORPORATION

Baltimore 3, Maryland

Producers of: Catalysts, Inorganic Acids, Superphosphates, Phosphate Rock, Silica Gels and Silicofluorides. Sole Producers of DAVCO® Granulated Fertilizers.

*T.M. REG. APPLIED FOR

Circle No. 44 on Reader Service Card

Circle No. 45 on Reader Service Card

ride the Tenney line!

Half-Round Cooling Unit

just one of our many units that really make money for you with easier, more dependable installations, and customers 100% satisfied!

Interested?

Talk it over with

Tenney ENGINEERING, INC.

26 AVENUE B, NEWARK 5, N. J.

Plants: Newark, N. J., Union, N. J. and Baltimore, Md.

the adjustable CAPILLARY TUBE for perfect Refrigerant Control

- Remains constant, once adjusted to a given resistance.
- Assures capacity balance between unit and capillary tube resistance.
- Eliminates float or automatic expansion valve.
- Equipped with 150 mesh monel screen, easily removed for cleaning.
- Comes complete — ready to install.
- Sold by Leading Wholesalers.

Send for fully descriptive Bulletin SE 51

Allin MANUFACTURING COMPANY

1153 West Grand Ave., Chicago 22, Ill.

Circle No. 46 on Reader Service Card

USEFUL BULLETINS · BOOKLETS · CATALOGS

The publications listed below are available to readers without charge. Simply circle on the postcard in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

WHY YOU SHOULD INSTALL "Foamglas" insulation for low temperature uses is explained in a mailing piece presented by Pittsburgh Corning Corp. Illustrations help explain special features of this type insulation which make it applicable for various types of installations. Photographs show applications in several industries.

Circle No. 111 on Reader Service Card

BRAZING ALLOYS are presented in a complete brochure by United Wire & Supply Corp. Types of alloys are listed beside their composition and application, so that the reader can quickly determine the correct alloy for his specific needs. Recommended brazing temperatures are listed for the various alloys as well as other pertinent physical data. A table giving complete specifications is also furnished.

Circle No. 112 on Reader Service Card

CONTROLLED FEEDING of sulfuric acid and sodium dichromate and the continuous regulation of blow down using a recording and indicating "Electronik" potentiometer with "Air-O-Line" control are covered in an instrumentation data sheet presented by Minneapolis-Honeywell Regulator Co. Controlled cooling water treatment is covered in sheet No. 9.6-7 as well as circuit drawings illustrating equipment location in a typical installation.

Circle No. 113 on Reader Service Card

LIQUID LEVEL GAUGES featuring a new convex scale for 180-degree visibility are described and illustrated in a catalog sheet presented by Jerguson Gage & Valve Co. Construction features of these "Truscale" remote reading gauges are furnished and operating features are also listed.

Circle No. 114 on Reader Service Card

UNIT COOLERS for use in commercial refrigeration applications are detailed in Bulletin No. 104-53 presented by Tenney Engineering, Inc. Illustrations of the unit, showing the twin fans and motors and the ease of accessibility are included. Also contained in this bulletin on "TW" coolers are complete dimensions and application data.

Circle No. 115 on Reader Service Card

WROUGHT IRON NIPPLES in both standard and extra strong types are covered in a folder presented by A. M. Byers Co. Descriptions of the composition and corrosion resistance of wrought iron fittings as well as complete specification tables are included.

Circle No. 116 on Reader Service Card

(More Useful Literature on page 74)

NO SPECIAL WIRING! **NO SPECIAL PLUMBING!** **ONLY ½ H. P. TO EACH CABINET!**

required for this—

42 feet of Zero selling space!

$185.00 in frozen food sales per week-end day from these six new 17 cu. ft. merchandisers, reports Frank Lamfalusi, proprietor of FRANK'S SUPER MART.

Increased sales . . . compact design . . . low cost of installation and operation of GF-17's pleases Gary, Ind. super market operator. Here's what he says: *"From every standpoint—performance, economy, dependability—Kelvinator low temperature cabinets have, in my experience, been by far the best."*

102 *cubic* feet . . . 42 *lineal* feet, of zero selling space—plus plenty of unrefrigerated display shelf area in illuminated super-structures of these six eye-appealing, sales-attracting Acco GF-17 frozen food merchandising cabinets from Kelvinator. Compare their amazingly low cost with any other Thermopane glass front cabinet of similar size.

For full information see your local Kelvinator representative—or write Kelvinator, Division of Nash-Kelvinator Corporation, Detroit 32, Michigan.

FRANK'S SUPER MART

3401 WEST 11TH AVENUE - GARY, INDIANA

Mr. J. A. Komar - Commercial Sales Manager
Nash-Kelvinator Sales Corporation
6700 North Lincoln Avenue
Chicago 45, Illinois

Dear Mr. Komar:

You will find enclosed a photograph of the six recently installed GF-17, Kelvinator frozen food merchandising cabinets purchased from your distributor E. J. Byman Co., Calumet City, Illinois.

I'm really proud of this handsome line-up of 102 cubic feet of zero selling space that really sells. My frozen food "department" formerly consisted of a medium size ice cream cabinet from which sales averaged $15.00 per week end day. Since installing these new GF-17s, frozen food sales have jumped to $185.00 per week end day.

In my many years of grocery merchandising experience, I have had occasion to use many makes of ice cream cabinets. From every standpoint -- performance, economy, dependability -- Kelvinator low temperature cabinets have, in my experience, been by far the best.

When the new GF-17 model was introduced, I was immediately impressed with its compact design and appearance. Installation was inexpensive because they operate on standard 110 volt current and require no special wiring or plumbing.

In my opinion the GF-17 has no equal in its size or price class.

Yours very truly,

Frank Lamfalusi

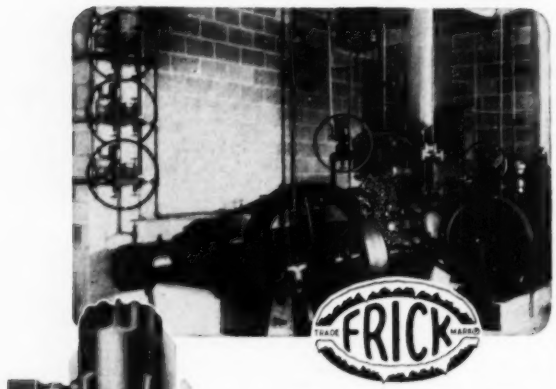
Frank Lamfalusi, Proprietor
FRANK'S SUPER MART

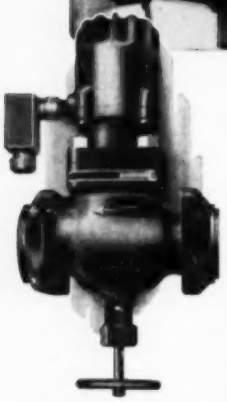
Get **Kelvinator**

The Best Known Name on Modern Frozen Food Cabinets

Circle No. 47 on Reader Service Card

Circle No. 48 on Reader Service Card

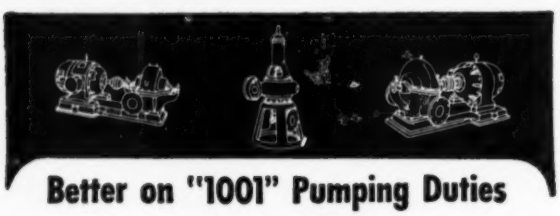




Electric Control Valves

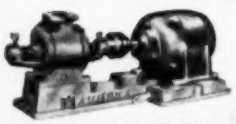
Are preferred for ammonia and Freon suction and liquid lines, unloader service, etc. Withstand 250 lb. pressure. Sizes 1" to 2½". In highly successful use 20 years. See your Frick Branch or Distributor, or write to

DEPENDABLE REFRIGERATION SINCE 1882
FRICK CO.
WAYNESBORO, PENNA. U.S.A.

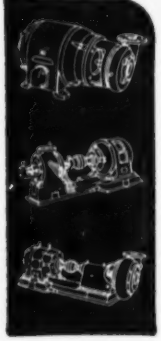


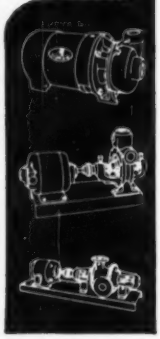
Better on "1001" Pumping Duties

Capacities to 150 G.P.M.



Heads to 500 Ft.





APCO Two-Stage Turbine Type Pump for High Pressure Service

Apco—the pump with but one moving part, the impeller — is famous for long-lived, efficient performance on small capacity, high head duties. Available in Single Stage, Two Stage and 4-Stage Tandem for high pressures — and Water Jacketed for high temperature and highly volatile liquids.

Write for Bulletins 111, 111-A, 111-WJ

DISTRIBUTORS IN PRINCIPAL CITIES

AURORA Always PUMPS
AURORA PUMP COMPANY

SUBSIDIARY OF THE NEW YORK AIR BRAKE COMPANY
42 LOUCKS ST., AURORA, ILL.

Circle No. 49 on Reader Service Card

USEFUL LITERATURE . . .

Continued from page 72

BITUMINOUS BONDING CEMENT for bonding and vapor proofing rigid low-temperature insulation to walls and ceilings in refrigerated buildings is described in a catalog available from Presstite Engineering Co. Covering "Enamelite No. 350", the catalog includes laboratory data, specifications and complete application directions, as well as illustrations of existing installations using the cement.

Circle No. 117 on Reader Service Card

EQUIPMENT AND SUPPLIES for the meat industry are presented in a 76-page general catalog offered by Koch Supplies. Included in catalog 78 are more than 2000 products used in the slaughter and processing of meat. Illustrations of many pieces of equipment and accessories are included along with complete specifications.

Circle No. 118 on Reader Service Card

EXPANSION PROBLEMS in pipelines can be solved with the information given in a 24-page bulletin on "Flexon" expansion joint design, presented by Flexonics Corp. This guide contains complete engineering application and selection data. Also included is a discussion of the various types of expansion joints now on the market and types of pipeline motion solved by expansion joints. Also listed are installation instructions and selection data. A schematic piping layout is included.

Circle No. 119 on Reader Service Card

DIAL THERMOMETERS for long distance measurement are described in a 16-page bulletin presented by Foxboro Co. Included in bulletin 467 are dimensions and bulb lengths for plain and union type bulbs, illustrations of five types of connecting tubing, and diagrams showing suggested installation methods.

Circle No. 120 on Reader Service Card

COMPLETE INFORMATION on type "DO" solenoid valves manufactured by Eclipse Fuel Engineering Co. are presented in a catalog sheet available from the company. Cut-away drawings of the valves show both closed and open positions. Description of how the apparatus operates is included beside the illustrations for close reference.

Circle No. 121 on Reader Service Card

CUTTING PRODUCTION COSTS with electronic controls is covered in a revised handbook published by Photoswitch, Inc. Included are 46 new case studies which explain clearly and factually how standard packaged electronic controls have solved problems of timing, cycling, measuring, counting and weighing in all types of industrial applications.

Circle No. 122 on Reader Service Card

SIMPLIFICATION in the listing of types and sizes of fittings is the aim of the Anderson Metals Corp. catalog. The new catalog arrangement enables even a layman to identify the specifications of any part with ease. Catalog #300 covers a wide line of tube fittings, valves, cocks, tubing tools and specialty accessories.

Circle No. 123 on Reader Service Card

(See page 66 for Air Conditioning Literature)

NEW PRODUCTS

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

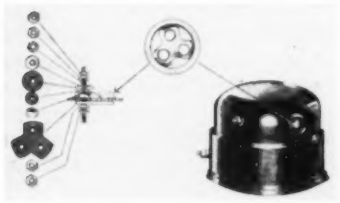
(For Air Conditioning Products turn to page 68)

Replacement Kit

Product: Replacement kit for repairing fused glass type terminals.

Manufacturer: Wagner Tool & Supply Co., Long Island City, N. Y.

Features: For use on later model sealed units, new "Terminettes" are



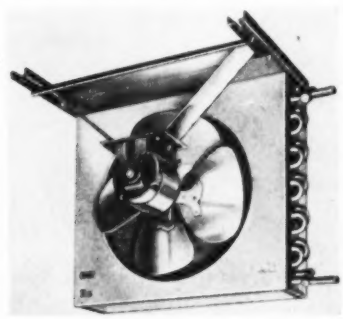
easily and quickly installed. Defective fused glass type terminals are driven out and new ones installed in much the same manner as with older single-post terminal replacements. Complete installation instructions are supplied with each kit.

Circle No. 141 on Reader Service Card

Blower Condensers

Product: Line of blower condensers.

Manufacturer: Bush Mfg. Co., West Hartford, Conn.



Features: Blower condensers incorporate company's patented "inner-fin" tubing in the condenser surface, providing greater efficiency per row of tubing. Units offer water saving, low maintenance costs, and are easy to install and service. Condensers contain husky propeller-type fans to circulate air over the condenser surface. Units are available in 2, 3, and 5-ton capacities.

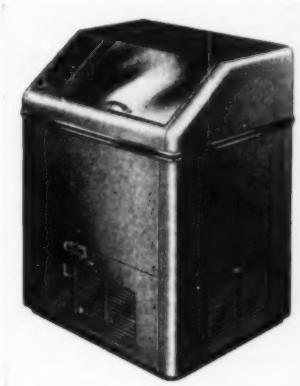
Circle No. 142 on Reader Service Card

Ice Cube Machine

Product: Model SC-100 "Super Cuber" ice cube machine.

Manufacturer: American Gas Machine Co., Albert Lea, Minn.

Features: Designed for the "small user" market, machine makes solid, uniform ice cubes. Water



consumption is 1½ quarts per freezing cycle, and as no water is reused, no cleaning is necessary. New type sealed insulation assures maximum storage efficiency. Daily capacity is 110 lbs. of ice or 1,900 cubes. Cubes are round, solid, and have no holes. Patented freezing mechanism has no moving parts to wear out, no complicated controls. Unit is completely automatic, turns itself off and on, maintains adequate supply of cubes in the heavily insulated stainless steel storage bin at all times. Refrigeration unit is a hermetically sealed ⅓-hp., 115 volt single phase unit which uses "F-12". Air cooled unit has a 5-year warranty.

Circle No. 143 on Reader Service Card

Self-Service Cases

Product: Line of full-vision self-service frozen food display cases.

Manufacturer: Federal Refrigerator Mfg. Co., Waukesha, Wis.

Features: Included in the line are full-vision produce cases with mirrored superstructures and open meat cases. Units are made in 7′ and 10′ lengths and are adaptable

to continuous line-ups. With ends, model 4207 is 7′ long, has about 6′ 5″ section size, 16.5 sq.ft. display area, and 15.1 cu.ft. cubical content. Similarly, model 4211 measures 10′ 5″ long, has a 9′ 10″ section size, a 25.4 sq.ft. display area, and 23.2 cu.ft. cubical content. Meat and display cases have identical measurements. Units are finished in front with white porcelain, and with white baked enamel ends.

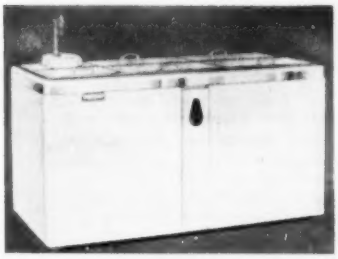
Circle No. 144 on Reader Service Card

Bottle Coolers

Product: "Beverage-Air" wet-or-dry type cafeteria bottle coolers.

Manufacturer: Punxsutawney Co., Punxsutawney, Pa.

Features: Available in two models; CA63-SW has capacity of



19 cases of 6-oz. bottles or 468 half-pints of milk; CA48-SW has a capacity of 12 cases of 6-oz. bottles or

340 half-pints of milk. Cabinet can be converted from dry to wet cooling by turning one control knob, features seamless stainless steel top railing and sliding or hinged type stainless steel lids. Adjustable glides for leveling and adjusting to 32 and 33-inch counter heights are furnished as standard equipment. Standard exterior finish is white baked-on enamel.

Circle No. 145 on Reader Service Card

BUY FROM YOUR REFRIGERATION WHOLESALER

Reach-in Units

Product: "Stylaramic" line of reach-in refrigerators.

Manufacturer: Sherer-Gillett Co., Marshall, Mich.

Features: Available in 28, 45, and 75 cu. ft. capacities with either solid or glazed doors. Coil is close coupled with self-contained condensing unit, without usual break ordinarily needed for coil housings. Units have shelves running full length and width of storage compartment. No drain required.

Circle No. 146 on Reader Service Card

Vibration Eliminators

Product: Series LM3 and LM5 "Barrymounts" vibration eliminators.

Manufacturer: Barry Corp., Watertown, Mass.

Features: These vibration eliminators contain their own leveling device which allows installation and

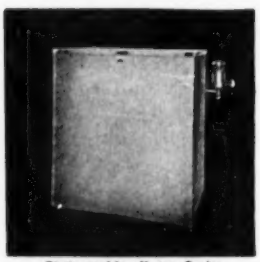
leveling of motors, compressors, etc. without bolting or shims. Mounts lift machinery to the required height for leveling by a simple turn of the attaching bolt. Mountings are engineered to isolate all modes of vibration — horizontal, vertical, rotational. Units are sound absorbers as well. Series LM3 and LM5 permit height adjustments up to ½" and carry loads up to 4200 lbs. per mount.

Circle No. 147 on Reader Service Card

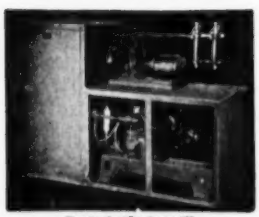
For Recognized Quality - Extra Gallons

Sell Your Condensing Unit - Filtrine Water Coolers

Mess Hall—Cafeteria Cooler



Photographic—X-ray Cooler



Typical "Packaged" Circulating Chilled Water System

Promote your own condensing unit sales with Filtrine's 20-year-life construction...high capacity . . . Super Storage . . . more than 40 years' dependability.

COOLERS FOR MESS HALLS — CAFETERIAS

Conform with Fed. Spec. 00-C-566b

COOLERS FOR X-RAY & PHOTOGRAPHY

PACKAGED CIRCULATING CHILLED WATER SYSTEMS

REMOTE COOLERS FOR ALL USES

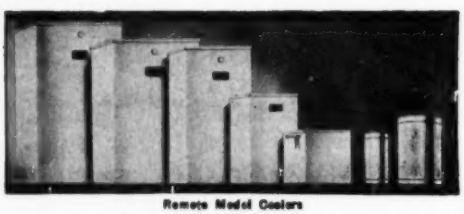
Sell your condensing unit with Filtrine Stainless Steel or Duco finished cabinets, equipped to suit with top/side shelves, bubblers, glass-fillers. Can be Taste-Master equipped to remove chlorine, rust, sediment from water.

Taste-Master

Sell your condensing unit with Filtrine models repeatedly named by V.A., Signal Corps, Air Force, etc. for X-ray, and photo-labs. Under counter design and floor-mounted models with stainless steel work-table top. Filters (extra) to prevent scratched and pin-holed negatives.

Sell your condensing unit! Systems for drinking or processing water—completely packaged with pump, controls, your condensing unit factory installed. Capacities 5—400 g.p.h.; storage 5—150 gals. Filters and Rectifier-Dechlorinators (extra) to insure taste-free, sparkling water.

Sell your condensing unit with remote models for new and replacement jobs—all applications. Capacities 10—1000 g.p.h.; storage 7—300 gals. Filters, Rectifier-Dechlorinators available for all sizes.



Remote Model Coolers

Write for Catalog and Specification Guide

Filtrine HIGH EFFICIENCY — FILTRINE MANUFACTURING COMPANY · BROOKLYN 5 · N. Y.

"Water Coolers and Filters for 40 Years"

Circle No. 50 on Reader Service Card

Hand Pump

Product: Hand pump for blowing or sucking out sludge in oil lines.

Manufacturer: Hold-Tite Valve Mfg. Co., New York, N. Y.

Features: Pump can be used for priming and testing lines, can handle air and most liquids. Suction and pressure side terminate in two "Oil-Chek" valves. Piston is made of

it's a drier!

it's a strainer!

it's a combination of both!

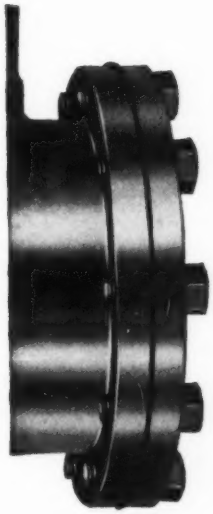
The sensational new versatile

MUELLER BRASS CO.

CARTRIDGE DRIER

in capacities from 1 h.p. to 40 h.p.

4-cartridge, 4" diameter shell, 40 h.p. capacity model



The new Mueller Brass Co. Angle Type Cartridge Drier is designed to meet every operating requirement. Versatility is the outstanding feature of this unit. To secure this versatility, special strainer cartridges were developed to the same dimensions as the standard drier cartridges. These drier and strainer cartridges are completely interchangeable size-for-size. In a system requiring extra strainer capacity, a strainer unit may be placed in the shell ahead of one or more drier cartridges. For added protection and still more filtering area, the new unit has a special "safety screen" at the outlet end.

Look at all these outstanding features:

- spun inlet end provides strong, leakproof construction . . . faster heating for soldering.
- flanged end is positively sealed by neoprene asbestos gasket, with minimum bolt torque.
- cartridges are non-directional . . . filter screen and dispersion plate at each end insures even distribution of high velocity refrigerant for maximum desiccant contact.
- the new silica gel PA 400 desiccant provides up to 98% more drying capacity.

117-R

STREAMLINE PRODUCTS

MUELLER BRASS CO. PORT HURON 10, MICHIGAN

Circle No. 51 on Reader Service Card

solid brass with neoprene ring. Barrel is 8" long, is made of heavy gauge brass. Pump is available with or without check valves.

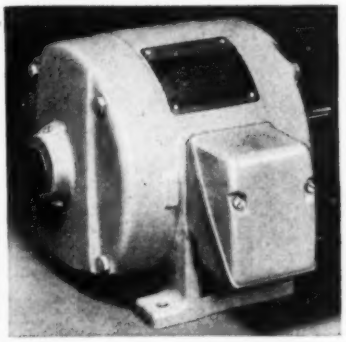
Circle No. 148 on Reader Service Card

Motor Line

Product: Line of "Tri-clad 55" polyphase ac motors.

Manufacturer: General Electric Co., Schenectady, N. Y.

Features: Average size reduction of 50% by volume and averaging 22% less weight per horsepower, the 55 retains rigid cast-iron construction and has a new insulation system, bearing assembly, and ventilation plan. Insulation system based on new polyester film, eight times as strong as previously used materials, which is used to insulate the phases and slot tubes in the stator. Bearing assembly is more tightly sealed, and is lubricated by grease that lasts five times longer than formerly used lubrication. Double-end ventilation system uniformly cools motor by drawing air in from beneath both endshields, through baffled air passages, and out louvers on frame sides. New endshield and frame design provides greater protection on drip-



proof enclosure. Noise level has been reduced so that new 10-hp motor has noise level as low as former 2-hp model. Available in 1, 1½, and 2-hp at 1800 rpm sizes in horizontal drip-proof and totally enclosed fan-cooled models.

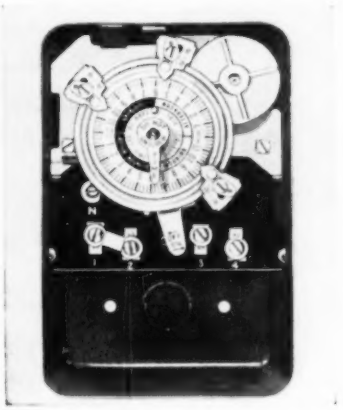
Circle No. 149 on Reader Service Card

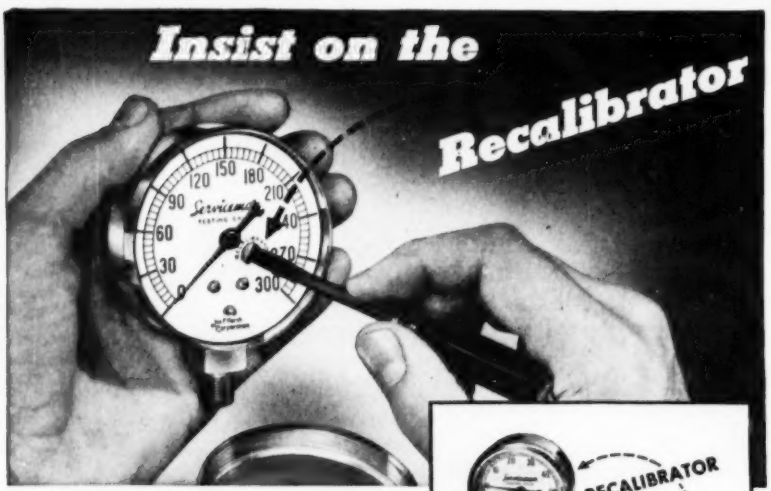
Time Switch

Product: Series T670 time switch for controlling multiple on-off cycles of less than one hour.

Manufacturer: International Register Co., Chicago, Ill.

Features: Recommended for controlling heat defrosting of commercial refrigeration where defrost periods of one hour or less are desired. Permits 12 defrost cycles a day, each independently controlled. Each cycle can be adjusted for any time period from 5 to 60 minutes. Length of time changes made by resetting trippers. Small time scale stamped on face of the tripper.





—Vital to Every Testing Instrument

Using a testing gauge that doesn't have a convenient means of keeping it accurate is like using a cutting tool without a handy means of keeping it sharp.

Like good cutting tools Marsh Gauges are "sharper" to begin with, but if you ever knock them out of adjustment you can "sharpen" them up in flash with the twist of a screwdriver.

That's why every true craftsman prefers Marsh testing instruments. When the pointer fails to return to zero just turn the Recalibrator screw until accuracy is restored. And remember: the Recalibrator is the one sound way to "sharpen" a gauge because it gets right down to the source of the error . . . corrects the relation of the bourdon tube to the movement.

Marsh testing gauges and thermometers are the only testing instruments that have the "Recalibrator". Use these tools that *are* right and can be *kept* right.

See your jobber

WRITE FOR BULLETINS

MARSH INSTRUMENT CO.
Sales Affiliate of Jas. P. Marsh Corporation
DEPT. P , SKOKIE, ILL.

Easily removed knurled rings on the new, handsome Marsh testing gauge set gives quick access to the "Recalibrator." Here is the team of thorobreds for the serviceman who wants the best. (Dial size, 2½").

The "Recalibrator" is the finishing touch to this finer testing gauge with three extra color differentiated scales for sulphur dioxide, methyl chloride, and Freon. (Size, 2½").

The "Serviceman" thermometer also has the "Recalibrator." Note the 4-scale version of the Serviceman with color-differentiated pressure equivalents.

MARSH *Refrigeration Instruments*

Circle No. 52 on Reader Service Card

Time selector pointer held in place by a small screw. To change length of time period, loosen the screw, move the pointer to desired timing and tighten screw. Switch available in 125 and 250 volt models. Case measures 7¾" high, 5" wide, 3" deep.

Circle No. 150 on Reader Service Card

Flake Ice Bin

Product: Model Y-200 flake ice bin.

Manufacturer: Dunhill Soda Fountain Corp., Brooklyn, N. Y.

Features: Inclined sliding doors make it easy to get at storage area. Cabinet is 18 gage all metal con-

struction, with baked enamel outside and 24 gage stainless steel inside with all seams and joints spot welded and soldered for water tightness. Insulation is 2" vegetable cork, entire shell is treated with moisture proof adhesive cement for airtightness. Also, all corkboard is laminated and treated with the same adhesive. Bin top is reinforced with ⅛" angular steel frame to support the unit. Bin drain is ½" i.p.s. brass outlet. Two sliding stainless steel doors are well insulated and are set into a stainless steel frame. Dimensions are 25" wide, 32" deep and 40" high.

Circle No. 151 on Reader Service Card

Tubular Capacitor

Product: "CUB" model molded tubular capacitor for general replacement use.

Manufacturer: Cornell-Dubilier Electric Corp., South Plainfield, New Jersey.

Features: Capacitor is molded in mica-base Bakelite, which has high moisture resistance, extra strength, comparable dielectric qualities. Unit processed by special vacuum temperature-pressure cycling impregnation. "CUB" is dry assembly processed and sealed immediately after impregnation which results in high insulation resistance, low power factor. Each unit is tested at more than twice its rated voltage. Extra strong copper-weld leads permanently crimp-sealed to capacitor.

Circle No. 152 on Reader Service Card

Adhesive

Product: NP153 solvent type reclaimed rubber adhesive for cold room or extra low temperature installations.

Manufacturer: Miracle Adhesives Corp., New York, N. Y.

Features: Adhesive is produced for freezer and extra low temperature conditions. Adhesive will withstand temperatures as low as –60 F but has a top temperature range of only 70 F. Is not adaptable, therefore, in installations that are allowed to reach 70 F for thawing

WHAT CAUSES OIL DECOMPOSITION?

A lot of people will tell you that high discharge temperatures cause oil decomposition. This is certainly true. And it's a problem you can often handle easily by proper maintenance and adjustment of equipment. But this is not always enough. If the oil you're using doesn't have *high stability*, it can still decompose no matter what the discharge temperature may be. The solution to this is easy. Use an oil with proved high stability—SUNISO.

Sold by Leading Wholesalers Everywhere

SUNISO ADVANTAGES • provides adequate lubrication at all temperatures encountered in service • possesses a high degree of stability • won't throw out wax deposits under low-temperature conditions • has extremely low moisture content • resists formation of corrosive acids and carbon under service conditions • separates readily from refrigerant—won't react adversely

SUNISO
REFRIGERATION OIL
A PRODUCT OF SUN OIL COMPANY

Circle No. 53 on Reader Service Card

purposes. "Anchor" adhesive and type RT1000 adhesives, also produced by the firm, will fill such requirements. When using NP153, it is recommended to install insulation anchors at room temperature and let set for 72 hours. If installation must be carried on under low temperature conditions, 6 to 8 days drying time is recommended. Coverage is about 500 to 600 2 x 2" anchors per gallon of adhesive, or 50 sq.ft. per gallon direct application.

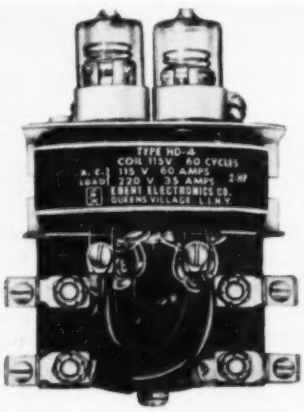
Circle No. 153 on Reader Service Card

Contactor Line

Product: Line of heavy-duty mercury contactors.

Manufacturer: Ebert Electronics Co., Queens Village, L.I., N.Y.

Features: Three models available; HD-1, HD-2, and HD-4. Relays have mercury-to-mercury contacts, are silent, chatter-free, hermetically sealed, explosion-proof and require no maintenance. HD-1 and 2 are rated 60 amps for 115 volt ac applications and 35 amps for 230 volts ac. Rating for d.c. is 12 amps at 120 volts, 7 amps at 240 volts. Horsepower rating is 2-hp at 115 volts a.c., ½-hp at 120 or 240 volts d.c. HD-1 is normally open; HD-2 is normally closed.



Units measure 4¼" x 2⅝ x 2¼". Model HD-4 is two-tube contactor, with each tube controlling 60 amps at 115 volts a.c. and 35 amps at 230 volts a.c. Control capacity per tube for d.c. is 12 amps at 115 volts. For motor control, HD-4 is rated at 2-hp at 115 volts a.c. single phase, 3-hp at 230/440 volts a.c. single phase, and ½-hp at 120/220 volts d.c. Can be obtained with both tubes normally open or normally closed.

Circle No. 154 on Reader Service Card

Display Cases

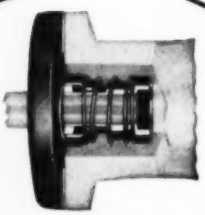
Product: Line of refrigerated "Saladessert" display cases.

Manufacturer: Stainless Food Equipment Co., Newark, N. J.

Features: For either self-contained or remote operation, units are available as either single service

ROTARY SEAL *Replacement Units*

Easy to Install . . . . . .
Efficient in Operation . . . . .
Simple in Construction . . .
Economical . . . . . .



For Commercial, Semi-Commercial, Air Conditioning and Household Refrigerator Compressors . . over 23 years of performance proof . .

UNITS FOR ALL STANDARD MAKES

AT ALL LEADING JOBBERS

THE ROTARY SEAL COMPANY — mechanical seals for rotating shafts

"Seal with Certainty!"

2020 NORTH LARRABEE STREET
CHICAGO 14, ILLINOIS, U.S.A.
CANADIAN AGENT: 2025 ADDINGTON AVENUE, MONTREAL 28, QUEBEC, CANADA

Circle No. 54 on Reader Service Card

wall case or double service, facing in both directions. Self-contained units have "Kolstream" blower and coil, compressor, and water station models have 20-gal. heat exchangers. Units offer choice of stainless steel hinged doors or duo-pane glass sliding base doors. Upper non-refrigerated display case optional equipment. Refrigerated counter top display cases are available separately. Available in 4, 5, and 6′ lengths.

Circle No. 155 on Reader Service Card

Creamer

Product: Model 810-A creamer.

Manufacturer: S. & R. Soda Fountain Mfg. Co., New York City.

Features: 10-gallon creamer is only 42″ long, 27″ wide, and about 40″ high. Midget unit, specially suitable for small layouts. The compact unit contains: 3 syrup jars and

pumps; 1 single chocolate jar and pump; 1 spoon holder; 2 insulated draft arms; 1 disherwell; 1 waste chute and a tilting refuse bin.

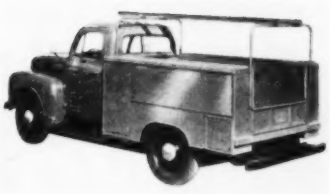
Circle No. 156 on Reader Service Card

Truck Bodies

Product: Line of truck service bodies.

Manufacturer: Utility Body Co., Oakland, Calif.

Features: Service bodies made for installation on ½, ¾ and 1-ton truck chassis, and construction units for 1½-ton and larger chassis. Illustrated model S-48 features full 48″ bed width. It is available with optional sliding cover and endgate enclosure. Flush pull-out type door handles with slam-action catches and



master-keyed cylinder locks are used throughout. Body nas an anti-buckling heavy duty corrugated steel floor with drainage outlets. Top panels are ribbed for added strength. Side-angle or overhead type ladder rack as standard equipment but if neither is required, cost is deductible. Model S-48 has a body length of 90″; S-60, 104″; and S-40 which is made on order only, 75″. Series E, larger enclosed superstructure bodies, and Series U compartments, for converting pick-up trucks into service bodies at low-cost, are also available.

Circle No. 157 on Reader Service Card

BUY FROM YOUR REFRIGERATION WHOLESALER

What is a Dryseal Pipe Thread?

Simply, it's a pipe thread that is specifically designed to insure a leak-proof connection without the use of sealing or luting compound.

Ordinary American Standard Pipe Thread Form

On an American Standard Taper Pipe Thread a spiral cavity occurs between the crest and the root of the thread. As shown, this void must be filled with a luting compound to insure a tight joint.

Why a Superior Dryseal Thread?

Dryseal Pipe Thread Form

1. Now, with Superior Dryseal Pipe Threads, the crest and the root are flat, as shown here. The roots of the thread of one part have a wider flat surface and thereby crush the sharper crests of the mating part. There is no void left to form a leaking joint.

2. In addition, Superior Dryseal Pipe Threads insure a more positive seal because the length of the threads has been increased.

3. When lubricants are used with Superior Dryseal Pipe Threads, it is to insure against galling or binding of the mating parts.

Specify Superior Dryseal Pipe Threads on all your fittings— get them from your wholesaler!

Superior ***valve and fittings co.***

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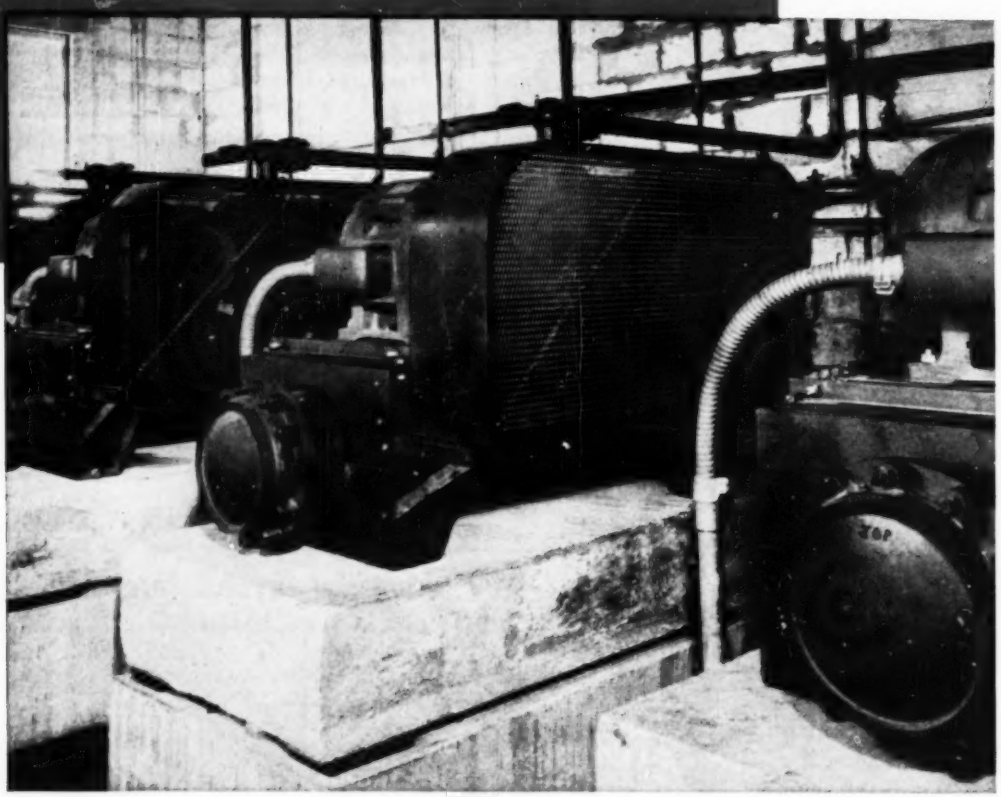
SATISFYING INSTALLATIONS



AIR CONDITIONING and refrigerating installations that give complete customer satisfaction — and solid profit for you — are possible only when compressors run smoothly and dependably. Best way to assure this is to lubricate with *Texaco Capella Oil (Waxfree)*.

Texaco Capella Oil (Waxfree) will not precipitate wax even when systems operate at temperatures as low as minus 100° F. It has outstandingly low haze and floc temperatures, extraordinary stability and resistance to oxidation. In addition, *Texaco Capella Oil (Waxfree)* does not foam and, because it's moisture-free, is compatible with all types of refrigerants.

There is a complete line of *Texaco Capella Oils (Waxfree)*. You can get one exactly right for any type or size of compressor, any operating condition. They are available in 55-gallon and 5-gallon drums, 1-gallon cans, and the more widely used grades in 1-quart containers — all *refinery-sealed* to protect purity and quality.

Let a Texaco Lubrication Engineer help you. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Capella Oils (Waxfree)

FOR ALL REFRIGERATING AND AIR CONDITIONING COMPRESSORS

TUNE IN . . . METROPOLITAN OPERA radio broadcasts every Saturday afternoon. See newspaper for time and station.

Circle No. 56 on Reader Service Card

RACCA and AFL Aim at Control of Automotive Air Conditioning

NOTICE has been served by the Refrigeration and Air Conditioning Contractors Association and the United Association (AFL) on the automobile industry and others that any attempt to remove or modify the protective provisions of any city or state refrigeration codes will be vigorously resisted by these groups.

A resolution to this effect, drafted by a joint committee composed of top executives of both the contractor organization and the labor union, was adopted Oct. 22 during a meeting of these two associations in Washington, D.C.

The resolution was signed by members of the joint committee, including R. W. Lampie, E. W. Farr, Jr., G. T. Howe, and Ray Kromer for the contractors, and M. T. Durkin, J. J. McCartin, L. A. Green, and R. F. Lynch for the union.

Complete text of the resolution follows:

WHEREAS, the Refrigeration and Air Conditioning Contractors Association is the established organization of contractors engaged in the handling, installing, repairing and maintenance of refrigeration and air conditioning systems in connection with automotive equipment, and

WHEREAS, The United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of The United States and Canada, AFL, — hereinafter referred to as the "United Association"—is the organization of craftsmen whose members handle, install, repair and maintain refrigeration and air conditioning systems in connection with automotive equipment, and

WHEREAS, the American Federation of Labor — guided by its official records of the work jurisdiction of the United Association — has established the United Association as the only trade union whose members possess the sole and exclusive right to perform all the work of the refrigeration and air conditioning industry, and

WHEREAS, the Refrigeration and Air Conditioning Contractors Association will establish Installation and Service outlets where required, and

WHEREAS, the representatives of these two organizations wish to cooperate in insuring a safe and healthful condition for the operator and passengers of an automobile, bus, truck or other public conveyance by providing a quality of workmanship uniformly high through the services of qualified, trained mechanics employed by qualified contractors; therefore

BE IT RESOLVED

I

Inasmuch as refrigeration and air conditioning work in its most minor detail is work coming within the trade line jurisdiction of the United Association which covers installation and service work of all equipment; therefore, we, the Joint Committee of the Refrigeration and Air Conditioning Contractors Association and the United Association, in order to avoid jurisdictional controversies with other trades, insist that automotive refrigeration and air conditioning, as well as service work, be contracted for by bona fide contractors employing members of the United Association to install and service this equipment.

II

That the Refrigeration and Air conditioning Contractors Association hereby recognizes the United Association as the only trade union possessing the sole and exclusive right to perform the work of handling, installing, repairing and maintaining refrigeration and air conditioning systems in connection with automotive equipment.

III

That the United Association hereby recognizes the Refrigeration and Air Conditioning Contractors Association as the bona fide organization of contractors engaged in refrigeration and air conditioning work of every description, and further recognizes its local chapters as bargaining agents for agreements affecting wages and working conditions in connection with the installation and servicing of air conditioning and refrigeration in automotive equipment.

IV

That in order to assure the highest uniform quality of refrigeration and air conditioning of passenger car and truck equipment, the Refrigeration and Air Conditioning Contractors As-

sociation and the United Association agree to unite in providing a program of apprentice and journeyman training which will supply an adequate number of craftsmen fully qualified to assure the best of workmanship to the purchaser in connection with automotive equipment.

V

That all local chapters of the Refrigeration and Air Conditioning Contractors Association and all local unions of the United Association jointly cooperate in this effort to procure the highest quality of refrigeration and air conditioning performance for the public, by recognizing their mutual obligation as described above, and, further, we will resist any attempt on the part of the automotive industry and/or others to remove or modify the protective provisions of the city or state refrigeration codes, as it may pertain to refrigeration and air conditioning equipment being installed in all automotive equipment.

RACCA GETS 3 NEW MEMBERSHIP BIDS

Three new applications for membership have been received by the Refrigeration and Air Conditioning Contractors Association.

J. P. Mengel, Chickasaw Heating & Distributing Co., Memphis, Tenn., Joe Marchase of Marchase Refrigeration, Pittsburgh, Pa., and O. B. Lund, O. B. Lund Co., Havre, Mont., were the three submitting membership applications.

CHICAGO RACCA CHAPTER DISCUSSES RENTAL UNITS

Rental of air conditioning equipment was the subject of a discussion held at a recent meeting of the Chicago chapter of the Refrigeration & Air Conditioning Contractors Association.

Members who had let out equipment on a rental basis gave facts and figures and their opinions on the various methods of handling the deals.

Since this system is still in its infancy in the Chicago area, the contractors were extremely interested in the session. They believe the demand for equipment on rental basis will become more prevalent during the next few years, according to a report in a recent RACCA News Letter.

CALIF. RACCA PROPOSES 11-POINT PROGRAM

Development of new objectives for the Refrigeration & Air Conditioning Contractors Association of Southern California, and increased emphasis on present objectives, were principal subjects of a recent association membership meeting.

A special committee composed of Bill Eby of York Corp., Bob Noll of Commercial Refrigeration, Don Beck of Kilpatrick & Co., Don Kissel of Kissel Refrigeration, and executive secretary Henry Ely considered future activities of the association for presentation at the recent membership meeting. These proposed activities include:

(1) Gradual elimination of the "loaning" or giving away of refrigeration equipment to retailers by companies engaged primarily in the sale of other merchandise.

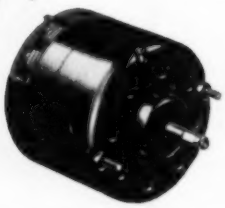
(2) Continued progress in the educational campaign to the end that wholesalers' and manufacturers' agents do not unfairly use their discount in selling to customers.

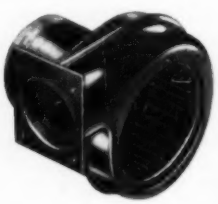
(3) Cooperation with the Construction Employers' Council of Los

How to cool off a hot customer

Everything wears out in time, even with guarantees, still, service call-backs do tend to irritate certain customers. If nothing else, a service call is an inconvenience.

But there is a way to cool off that hot customer and bring back at least part of his smile . . . and that's by installing the best in replacement parts. For aging refrigeration, heating and air conditioning equipment suffering from worn out motors, we recommend REDMOND MICROMOTORS . . . a great line of motor units up to 1/6 h.p. Also available is an equally fine line of blowers in capacities up to 280 cfm. Drop us a line for the name of your nearest Redmond Distributor.





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Angeles in creating a voice for the construction industry of Southern California in legislative matters, labor relations, relations with the public and with governmental agencies.

(4) Stepping up of a campaign to eliminate special registration fees for refrigeration and air conditioning contractors and examinations for journeymen by cities and counties.

(5) Campaign to the end that holders of a State Refrigeration License or Air Conditioning License obtain supplemental licenses with the same ease that holders of other licenses obtain the Refrigeration and Air Conditioning License.

(6) Insistence on a program for the National Association that will place special emphasis on the relations between the National group and the national manufacturers, including their warranties, the National's relations with other trade associations, the National's interest in the Safety Code as it relates to contractors, proper grouping of specifications, and other subjects for the National Association to undertake on a nation-wide basis.

(7) Enforcement of the State Contractors' License Law with relation to the licensing of refrigeration and air conditioning contractors.

(8) The advisability of the adoption of trade practices with relation to the public.

(9) Elimination of deceptive practices by unqualified contractors.

(10) Development of home air conditioning for members.

(11) Bi-monthly meetings of the membership.

VALVE GASKET PACKETS OFFERED TO JOBBERS

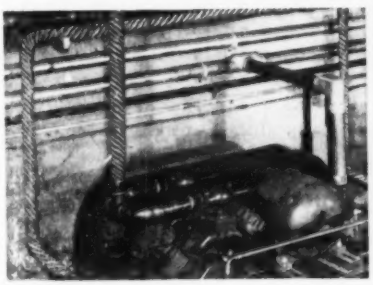
An attractive display board featuring handy cellophane packets of service valve gaskets is being offered as a merchandising aid to jobbers and as a practical help to refrigeration service men by Chicago-Wilcox Mfg. Co.

Each packet is clearly marked for size and type and contains a stock of 25 pieces. Six sizes, ranging from 1¼ to 2", are included in the display. The display board is offered at no extra cost to jobbers with each initial stocking order.

STOPS CONDENSATION DRIP

Yes, indeed, it takes care of the vexatious drip and sweating problem connected with cold water pipe installations. NoDrip Tape is pliable, cork-filled, 2" wide. When wound around pipes, it forms a tight fitting, moisture-proof jacket. Holds temperatures steadier, eliminates icing and frosting, prevents rusting, keeps pipes and floors dry.

Just the thing for pipes and suction lines running from refrigerating machines to condensers.



Use on refrigerant lines in air conditioning systems, walk-in freezers, deep freezers and on basement cold water pipes.

EASY TO APPLY

You don't need tools, brads or experience to apply NoDrip Tape. Just wrap it around pipes and press into place with your hands. Anybody can do it. Try a roll on a short section of pipe and compare with uncovered portion.

EFFECTIVE IMMEDIATELY

Follow the easy application directions on the package and you'll be surprised at results. You'll not be bothered with sweating and drip any more.

CONTRACTORS — Include NoDrip Tape protection in your estimates to stop drip, preserve pipes and fittings and also for good appearance. NoDrip is brown in color, but can be painted any color with cold water paint.

Roll covers about 10 ft. of ½" i.d. iron pipe or 13 ft. of ½" o.d. copper tubing.

$1.69

Higher west of Rockies & Canada

ORDER THROUGH YOUR SUPPLY HOUSE

Write for Interesting Circular

J. W. MORTELL CO.

Technical Coatings since 1895

533 Burch St., Kankakee, Ill.

MANUFACTURERS and SERVICE ENGINEERS

NoDrip Tape has been used for years on production lines of leading refrigeration equipment manufacturers. Investigate its many advantages.

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Handy Bender says

"In an 'el of a Shape with Fittings?"

Got yourself in an 'el of a shape ... consuming time and money using old-fashioned "el" fittings to turn corners? Then try a Handy. Your Handy Bender bends as you go, right on the job ... makes smooth, even bends in any pipe or tubing from 3/8" to 1 1/8" O. D., with a twist of the wrist. Your savings on your next job will pay for your Handy Bender. Get one tomorrow.

Handy

Ask your supply house, or write today to

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Handy Bender

Your Customers' Best Buy. . .

IDEAL

Speed-Freeze

PRODUCTS

BEVERAGE COOLERS
unexcelled storage capacity
(56 cases 12 oz. - 8 ft. cooler!)

INSTANTANEOUS DIRECT DRAW DRAFT BEER COOLERS
(with refrigerated faucets)

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2953 Easton Ave. St. Louis 6, Mo.

Circle No. 60 on Reader Service Card

CONTROLS . . .

Continued from page 64

may be more effective, depending upon the design of the cooling system.

The operation of an air conditioning refrigeration compressor can be controlled directly by a room or return air thermostat. It is more common practice to have the thermostat control the refrigerant supply to the coil through a solenoid valve. A low-pressure control can then operate the compressor motor.

This prevents excessive pressure building up in the crankcase and low-side during a long off cycle or during the heating season when a heating coil might be adjacent to the cooling coil. The low-pressure control can be set to pump down the coil and maintain any desired low-side pressure during the off cycle without affecting the operating temperature.

Fig. 3 shows a typical circuit for controlling refrigerant flow. When the manual switch is closed, the solenoid will be energized and the valve open, permitting liquid refrigerant to enter the coil. This will raise the low-side pressure and close the pressure switch, energizing the motor starter coil and starting the compressor.

Connecting Safety Controls

When the temperature is reduced to the thermostat setting or the manual switch is opened, the solenoid valve will close, the coil be pumped down and the motor stopped by the low-pressure control. The low-pressure control can be set to cut out slightly above atmospheric pressure and in at any point above the minimum operating pressure.

Safety controls such as motor overload relays, high-pressure cut-out, etc. are connected in series with the low-pressure control.

Control motors are simple but rugged induction motors with speed reducing gears and sometimes self-contained switches, relays or resistors for positioning. Since they often have to operate in dust and moisture laden locations, they are usually enclosed to protect operating parts. Only the operating arm extends outside the enclosure.

The most simple control motor is the two position spring return. This is simply a small motor which operates an arm through a speed reducing gear. When it reaches the limit of travel, it is held by a mechanical stop. Current continues to flow through the motor winding, which is designed for continuous current flow with the rotor locked, holding the motor in the on position against the stop.

When the circuit is opened by the thermostat or manual control the motor returns to the off position. This motor has a familiar application in the operation of check and draft dampers, since the spring will close the damper in event of power failure.

Including Limit Controls

A circuit diagram for this type of motor is shown in Fig. 4 Limit controls may be included in the series circuit as required.

A typical application of a floating control motor is shown in Fig. 5. This is used when it is desired to maintain a constant static pressure within a duct, regardless of the opening and closing of dampers in other parts of the system.

The static pressure controller makes contact at H when pressure exceeds the setting, sending current directly through winding A of the motor and through the capacitor and winding B, giving a clockwise rotation to close the damper. When pressure falls too low, contact is made at L sending current directly through B and through the capacitor and A, giving a reverse rotation to open the damper.

So long as the desired pressure exists, the regulator switch will remain in the middle position and the motor will remain at rest. Interchanging leads A and B at the motor will reverse the action.

For some applications, a two-position motor without spring return is desirable. This motor requires current only when running. A three-wire thermostat, such as illustrated in Fig. 6, is usually used.

When the controller makes contact with L the motor will operate until the open segment of the motor-operated switch disconnects contact 1. It will remain in this position

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LARKIN HALF-TURRET HUMI-TEMP

Efficient operation makes a product easier to sell on one hand; builds solid customer satisfaction on the other. Precision engineering, only the best materials, skilled craftsmanship, and over 25 years experience in commercial and industrial refrigeration add up to higher efficiency for every Larkin product. And this means lower operating costs — important to buyer and seller alike.

Manufacturers of the original Cross-Fin Coil • Humi-Temp Units • Frost-O-Trol Hot Gas Defroster • Evaporative Condensers • Cooling Towers • Air Conditioning Units and Coils • Direct Expansion Water Coolers • Heat Exchangers • Disseminator Pans.

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Plastic EXTRUSIONS

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Jarene "B" Vinyl Plastic is an exclusive Jarrow compound. It is long lasting, weather resistant, compresses easily and is flexible to almost any degree from soft to semi-hard. Offered in a wide choice of colors.

Our plant is geared for small runs as well as large. All new, modern equipment is operated by skilled plastic craftsmen with many years experience.

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until the controller contacts H, sending current to contact 2, which will then rest on the contact disc connected to the motor winding, and the motor will return to the position shown.

The motor-operated switch is usually constructed so that, once started, it will travel a full 180 degrees, even if the controller contact should open. Provision is often made for an additional switch to override the controller.

The modulating controller and motor will position a damper, valve or other device precisely where desired, between full open and full closed. The motor is reversible and very much like the floating control motor but contains a balancing resistor or potentiometer and a relay.

Fig. 7 shows a wiring diagram for one modulating circuit. The controller moves a contactor along a resistance potentiometer connected in series with the two relay coils and a similar potentiometer operated by the motor.

As shown, the relay is balanced and the motor at rest. If the controller moves in either direction, more current will flow through one coil and less through the other, causing the relay to connect one directional winding of the motor. The motor will then operate until its contactor finds a point at which the relay is again balanced. This will be when it is in the same relative position as the controller contactor.

The different control circuits can be combined to provide any degree of automatic control desired.

PROCEEDINGS of the technical conference on year-round residential air conditioning held last April at Lehigh University have been published.

The published volume includes the technical papers presented during the two-day conference. Among the topics covered are: technical aspects of modern residential construction, a review of the ASHVE research program, load calculations for residences, problems of control and operation of air conditioning systems, and a review of the research work done at the University of Illinois.

Copies of the volume may be secured from the Department of Mechanical Engineering, Lehigh University, Bethlehem, Pa.

IT MAY BE "Lovely To Look At"

But If The Wiring Fails . . . So Does Your Reputation

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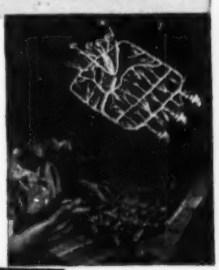
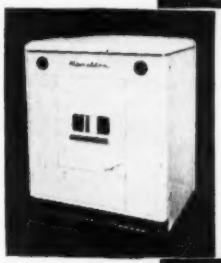
For over 10 years UNILECTRIC has been "Wiring Headquarters" for the nation's electrical industry. Over 130 leading manufacturers of refrigeration and other electrical appliances protect their products with UNILECTRIC Wiring Systems. Be sure of dependable performance in the products you sell by demanding UNILECTRIC Wiring Systems.

There is only ONE Standard of Quality at UNILECTRIC

This intricate wiring harness for a jet auto pilot must meet the most rigid specifications. A pilot's life and perhaps a major battle depend on it.





The same workmanship . . . the same standards of quality protect your product wiring and your product's reputation for dependability.

Today millions of UNILECTRIC Wiring Systems protect the performance of over 190 brands of appliances.

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ALL-YEAR ZONE SYSTEM COOLS INSTRUMENT CO.

The Aviation Engineering Corp., manufacturer of aircraft instruments in Woodside, Queens, New York, has air conditioned its new two-story administration building with two zoned all-year systems utilizing self-contained central station equipment.

The new structure houses the company's accounting department, executive offices and telephone switch room on its first floor. The second floor space is occupied by the engineering department offices and a model shop.

Two United States Air Conditioning Corp. 20-ton RK units are located in the basement and are connected by ductwork to the main floor rooms. On the second floor, an RK-20 and an RK-25 in a small equipment room furnish conditioned air to the offices and model shop.

The separate systems for the two floors are each controlled by a two stage thermostat for economical operation. All of the RK units are equipped with steam coils for year-round operation. The equipment was installed by Weathermatic Corp., Long Island City, contractor.

KENNARD NAMES REPS

Refrigerating & Power Specialties Co., San Francisco, Calif., and Neill Equipment Co., Omaha, Neb., have been appointed sales representatives for Kennard Corp. The California firm will cover the San Francisco trading areas which include northern California and western Nevada. Under the direction of Clarence L. Neill, the Omaha branch will cover the state of Nebraska.

ASRE Rated Units and Equipment for Freezing, Storing, Displaying and Transporting all Perishables

HEAVY DUTY SYSTEMS FOR
REFRIGERATED TRANSPORTATION

TWO-COMPRESSOR SYSTEM
Self-contained, plug-type, — for on-the-road and stand-by service. Complete low and high side. The best system for small trucks.

PLATE TYPE SYSTEM
For the body builder and service-construction contractor. Over-the-cab or body recess mounting. All basic piping and wiring done by factory to save installer time and money.

SINGLE-COMPRESSOR OVER-THE-ROAD SYSTEM
For installation by body builder or fleetowner. Complete balanced components for low side and high side.

REMOTE TYPE TRUCK UNITS
For full range of temperature demands. These famous "pay-load" units are in universal use and are available 3/4 thru 3 H.P.

Write for Special or Full Line Catalogs

Nation-wide distribution and servicing backs Lehigh's quarter-century of engineering and manufacturing experience. Write for latest catalog of truck systems or complete line including packaged automatic defrost systems.

Lehigh BLU-COLD COMMERCIAL REFRIGERATION

Lehigh BLU-COLD
CONDENSING UNITS and SYSTEMS
Lehigh Manufacturing Co. Lancaster, Pa. DIVISION OF LEHIGH FOUNDRIES, INC.

MANUFACTURERS OF MALLEABLE & GREY IRON PRECISION CASTINGS, REFRIGERATING EQUIPMENT, AIR VALVES, AUTOMATIC VENDING MACHINES

Circle No. 70 on Reader Service Card

PENN PITCH MAN

DRESSED as circus barkers complete with derby, checkered vest and cane, advance men for Penn Controls Inc.'s fall educational show went to wholesalers, dealers, manufacturers and trade organizations drumming up interest in the show. Ivan Stepnich, one of the "Barnum & Bailey" advance men, points to the counter card which these promotors set up in wholesaler or distributor establishments.

SERVEL NAMES NEW ST. LOUIS DISTRIBUTOR

A new distributor for the St. Louis trading area has been appointed by Servel, Inc., to cover 25 counties in western and southwestern Illinois, and 54 eastern Missouri counties.

The new distributor is Hollander & Co., Inc. Offices of the firm include: Herman Hollander, president; Stanley Hollander, vice president; Adolph E. Gross, vice president in charge of sales; August J. Reisch, secretary-treasurer; John McKeon, sales manager, and William Kovacik, service manager.

OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted, $6.50 minimum, limit 25 words. For all other classifications, $8.00 minimum for 25 words or under, each additional word 20¢; boldface type or all capitals, $10.00 minimum for 25 words or under, each additional word 25¢.

POSITIONS AVAILABLE

Refrigeration engineer for progressive small company in northeastern United States. Experienced in design and application of components for refrigeration equipment up to five ton capacity. Position also includes product research and development work and assistance with manufacturing problems. 35-50 years old, member ASRE, at least ten years experience, graduate engineer or equivalent. Replies confidential. Write Box 12153, COMMERCIAL REFRIGERATION & AIR CONDITIONING.

Sales Engineer: Wholesale Refrigeration and Air Conditioning. Experience in contacting servicemen and contractors. Engineering ability in both refrigeration and air conditioning necessary. Good opportunity. Western location, small territory. Give full details with references and recent photograph. Write Box 12353, COMMERCIAL REFRIGERATION & AIR CONDITIONING.

BUSINESS OPPORTUNITIES

Corporation will buy in metal fabrication or refrigeration fields preferably with loss carry forward from $50,000 to $150,000 but others considered. Furnish full details first letter. Replies held confidential by principals. Box 12253, COMMERCIAL REFRIGERATION & AIR CONDITIONING.

BUY FROM YOUR REFRIGERATION WHOLESALER

SUPCO ADDS 3,000 SQ. FT. FOR SEALED DOME REPAIR

Sealed Unit Parts Co., of New York City, is taking on an additional 3,000 sq. ft. of air conditioned space to be used for the rebuilding of sealed unit domes only.

The company is also broadening its line of capilliary tubes to include commercial, low-medium and high compression, and air conditioning which will be offered to refrigeration contractors through supply wholesalers.

JORDON NAMES TWO CONSUMER LINE OUTLETS

Two distributors have been named for the consumer line of Jordon Refrigerator Co. Both will handle upright home freezers, room air conditioners and portable dehumidifiers.

One is the Universal Sales Co., a division of the Southern Gas Corp., Atlanta, Ga. Sam I. Barber is president of the company; C. W. Barner, vice-president and J. J. O'Connor, secretary-treasurer.

Cold, Inc., State College, Pa., of which R. Gibbons is president, was named distributor for that territory. William Shifflet is vice-president, treasurer and general manager. Frank Hagerman is freezer-food manager.

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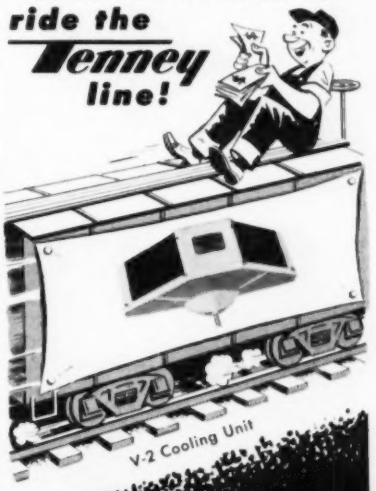
ride the Tenney line!



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SOLDER
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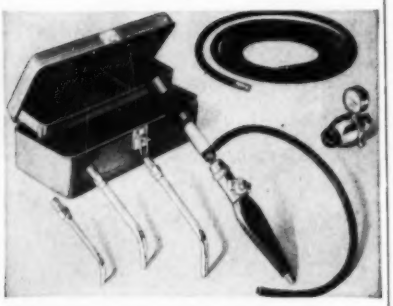

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Trade-Mark
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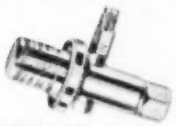

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When? ---------- **MARCH, 1954**

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